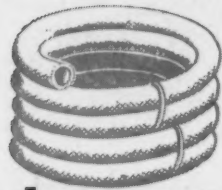


THE ARCHITECTURAL REVIEW

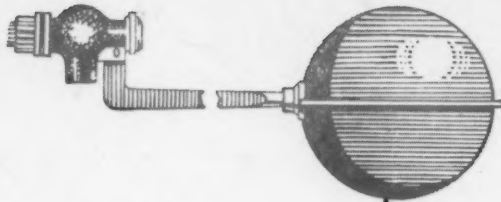
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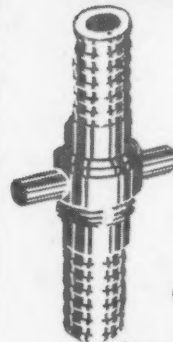
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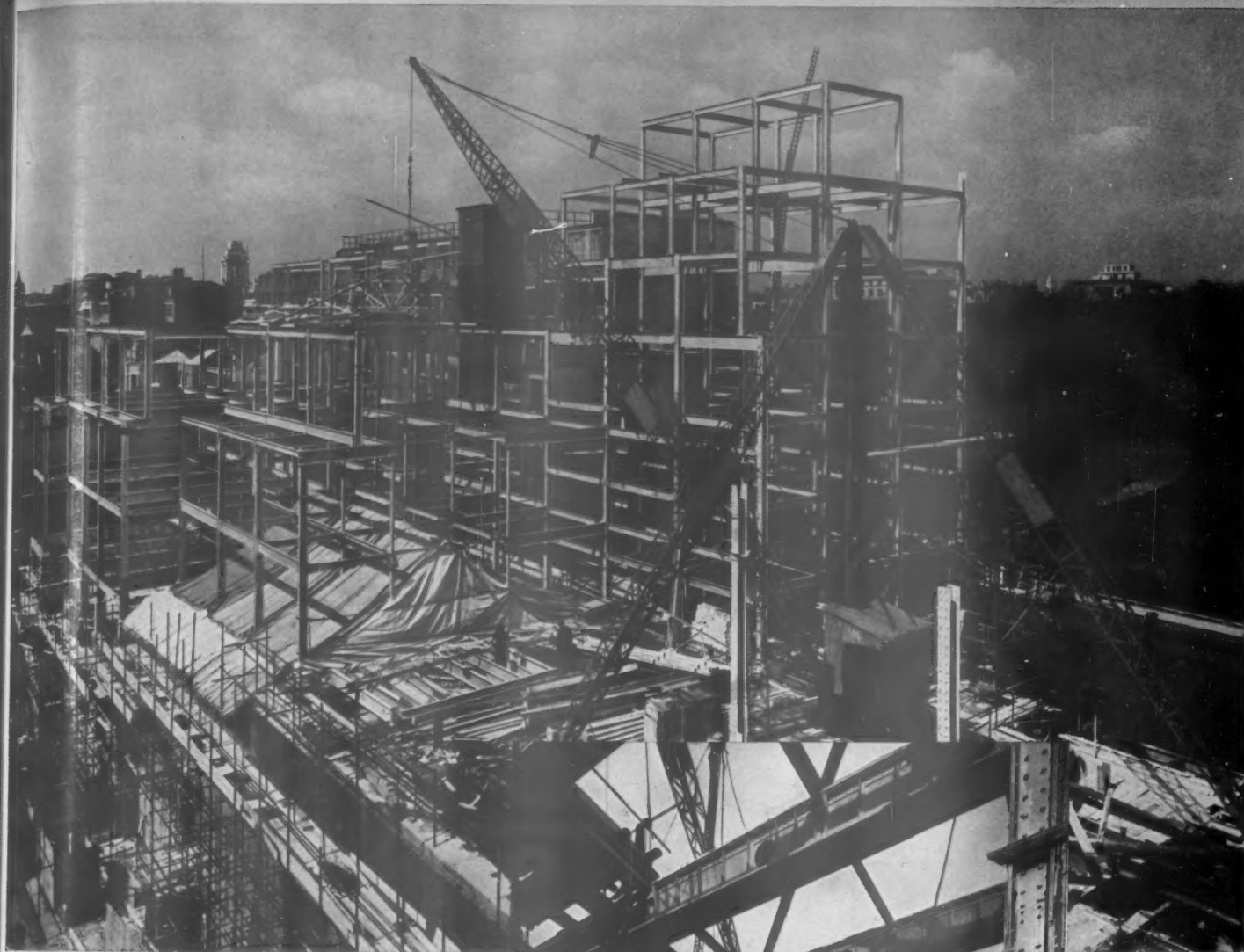
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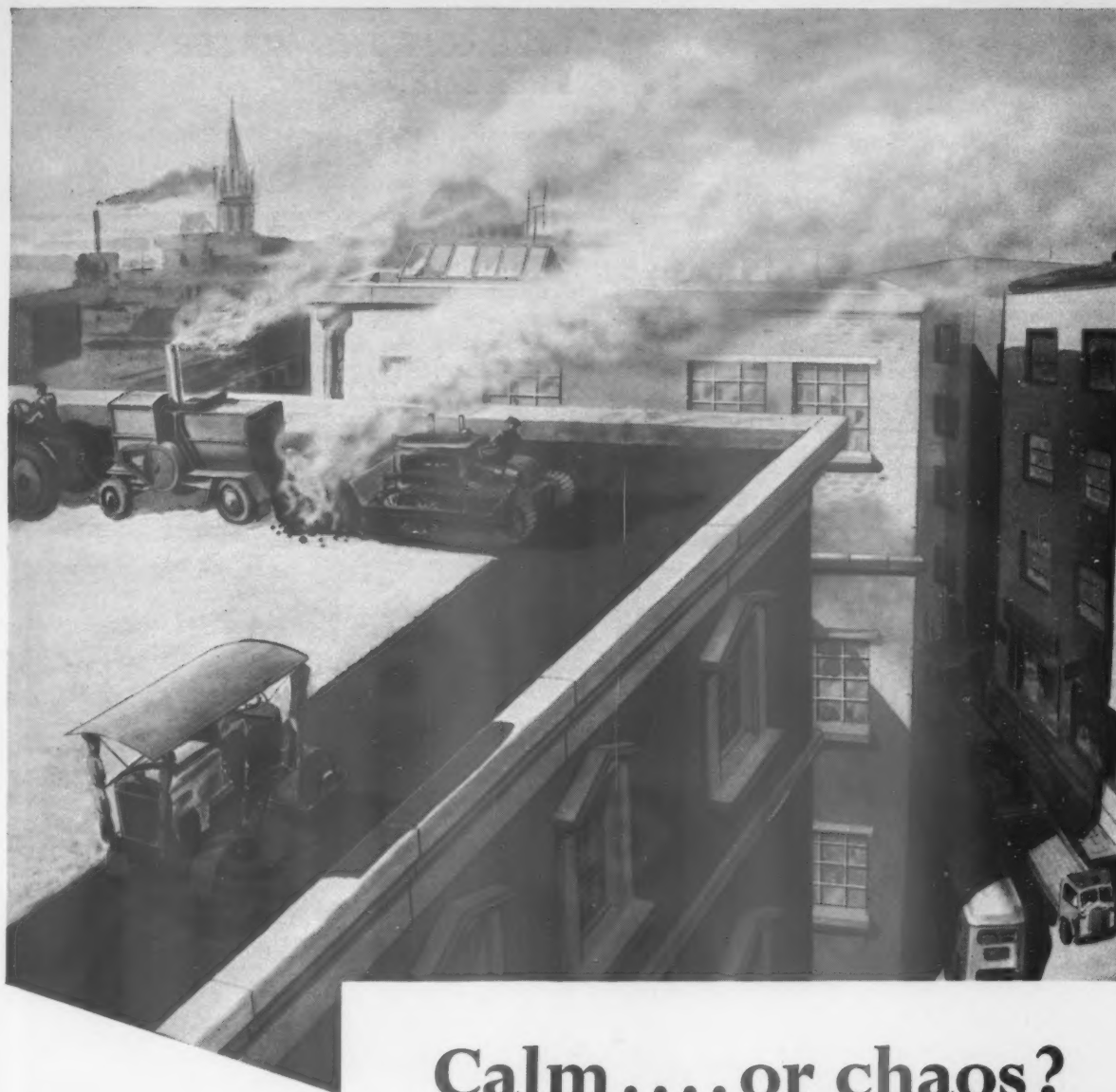
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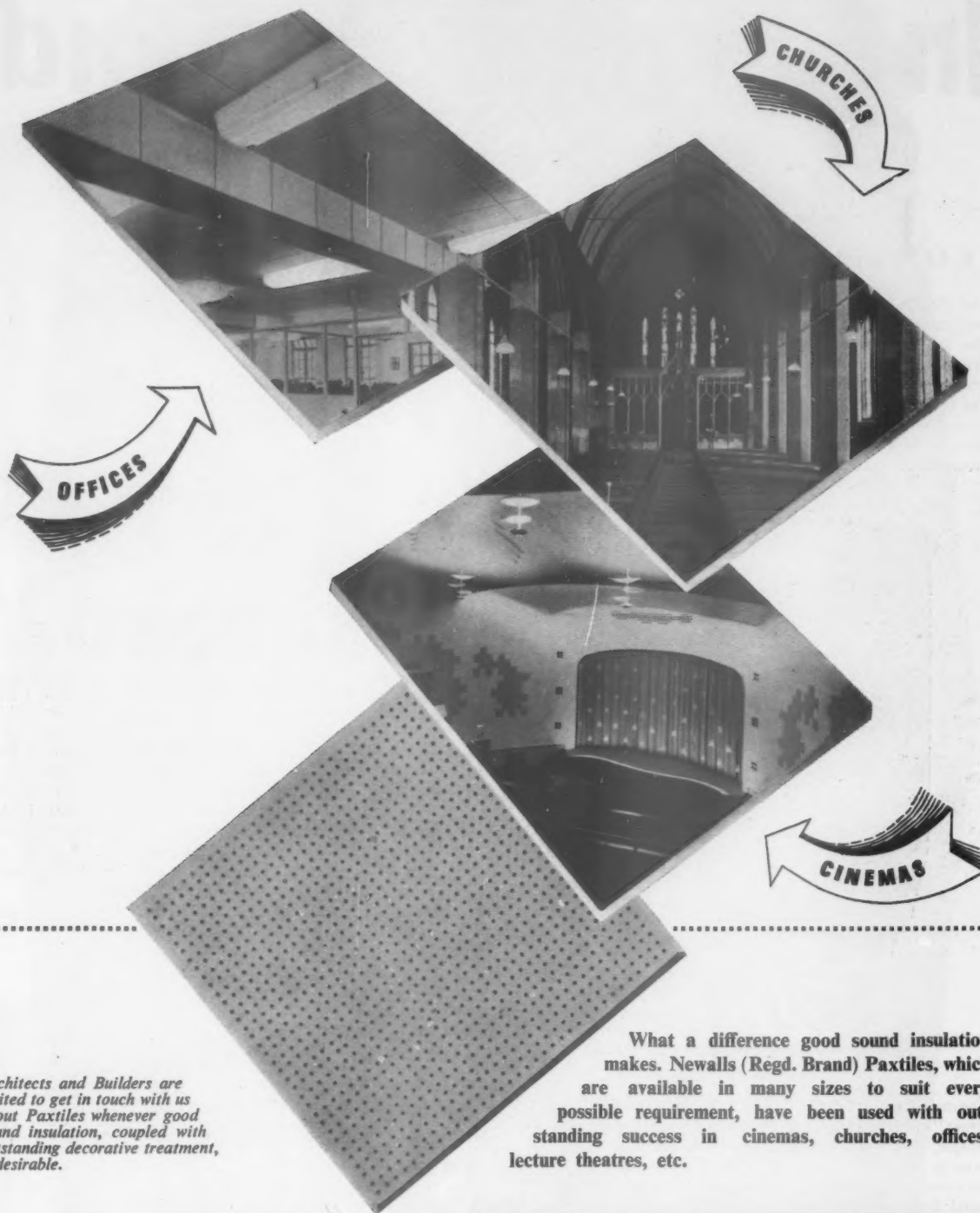
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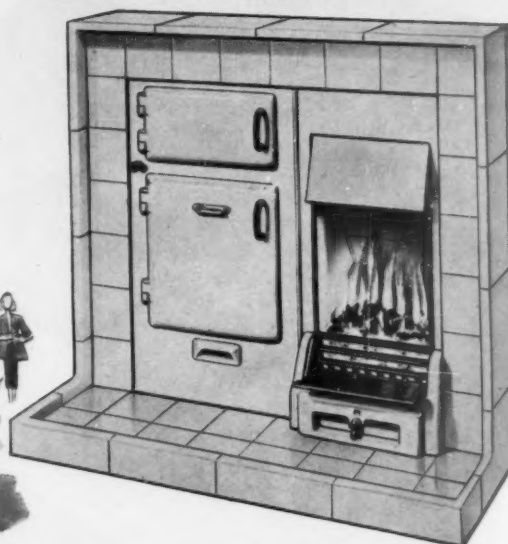


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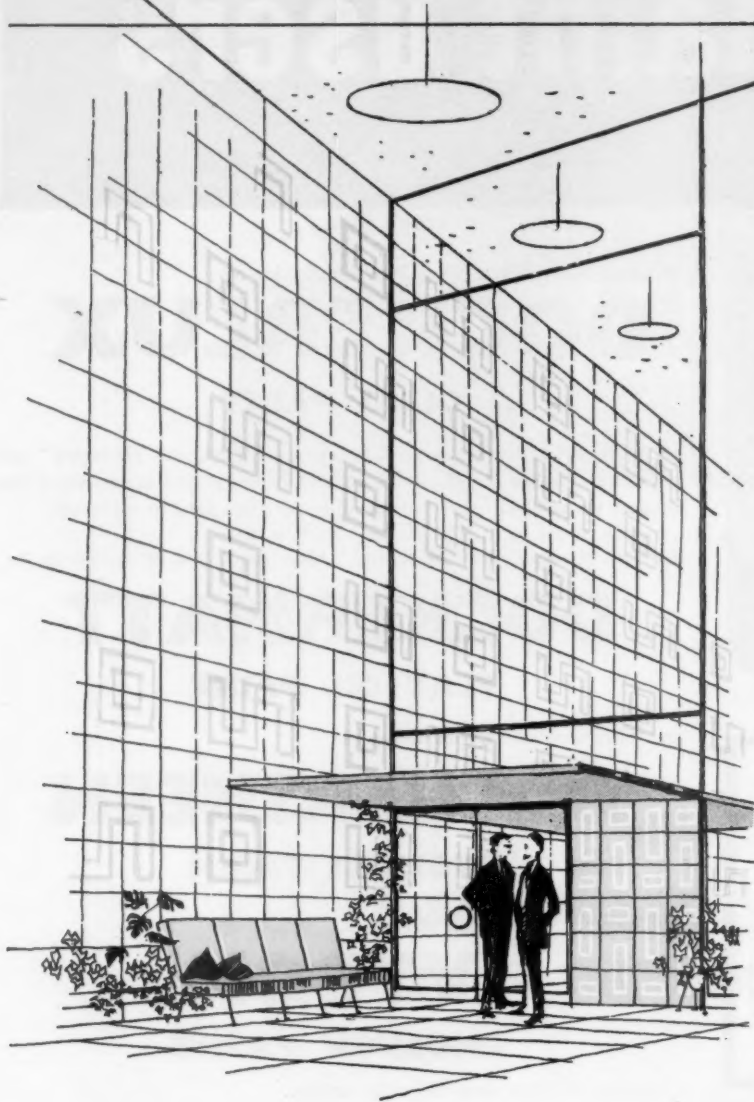
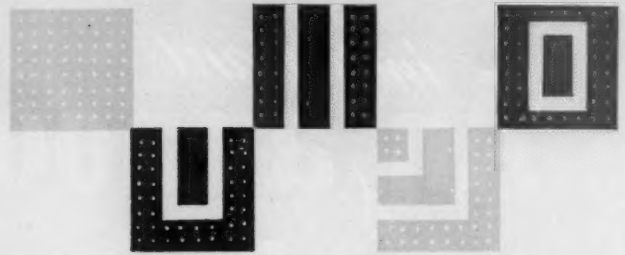
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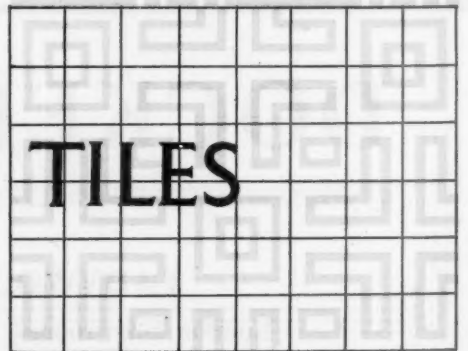


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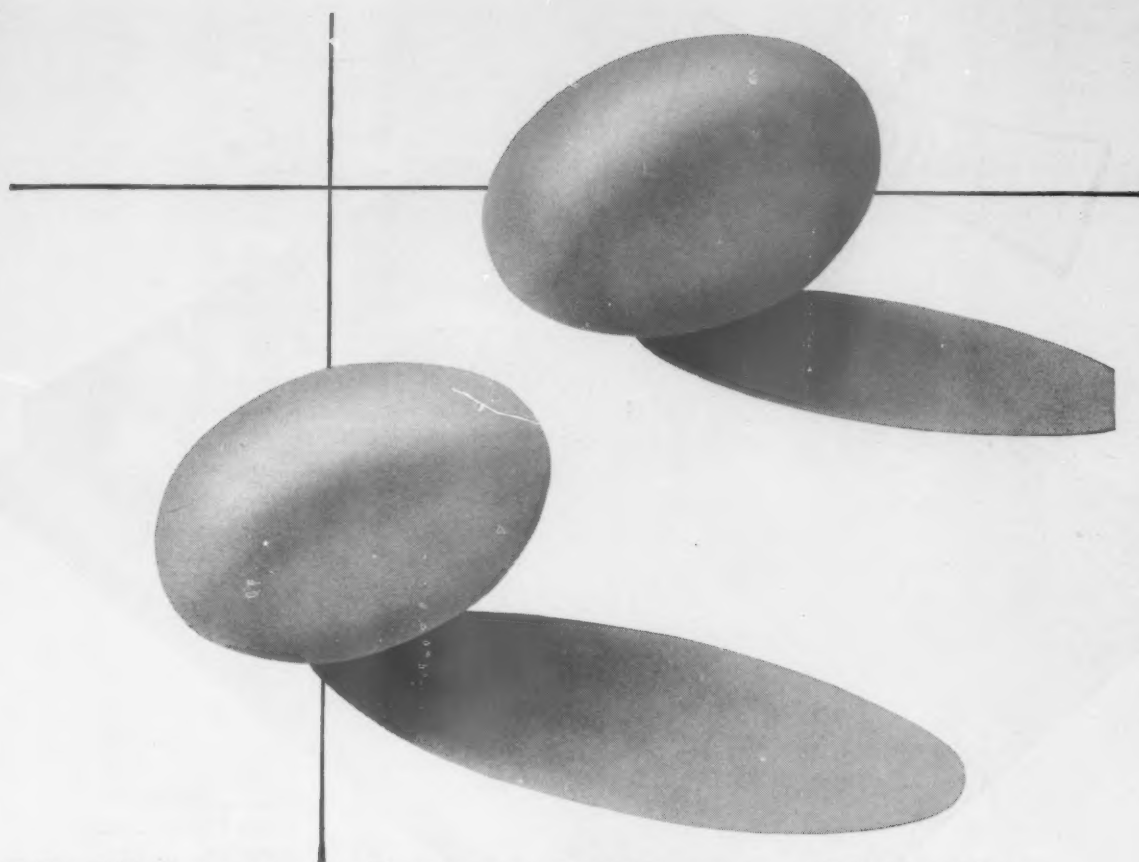
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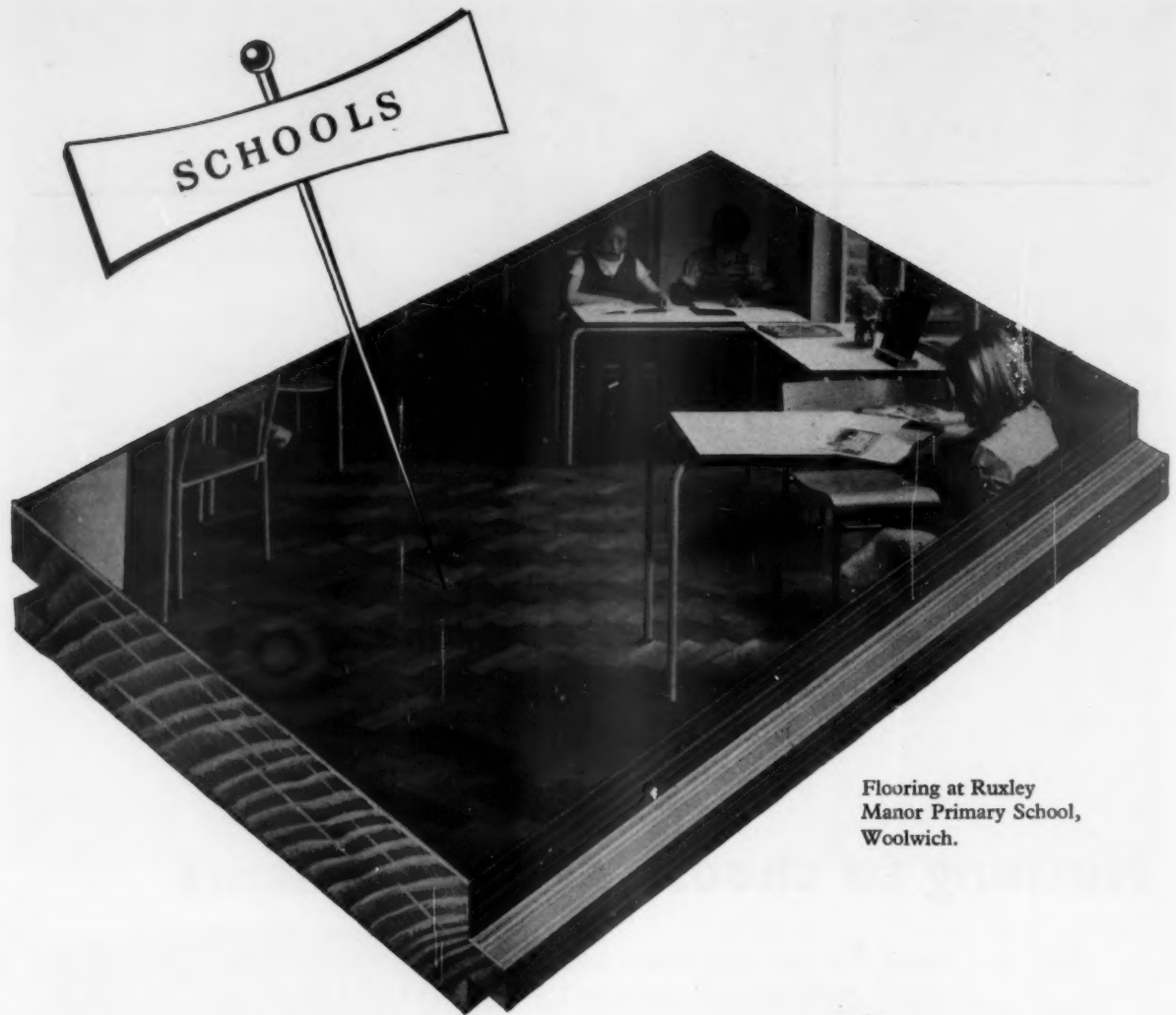
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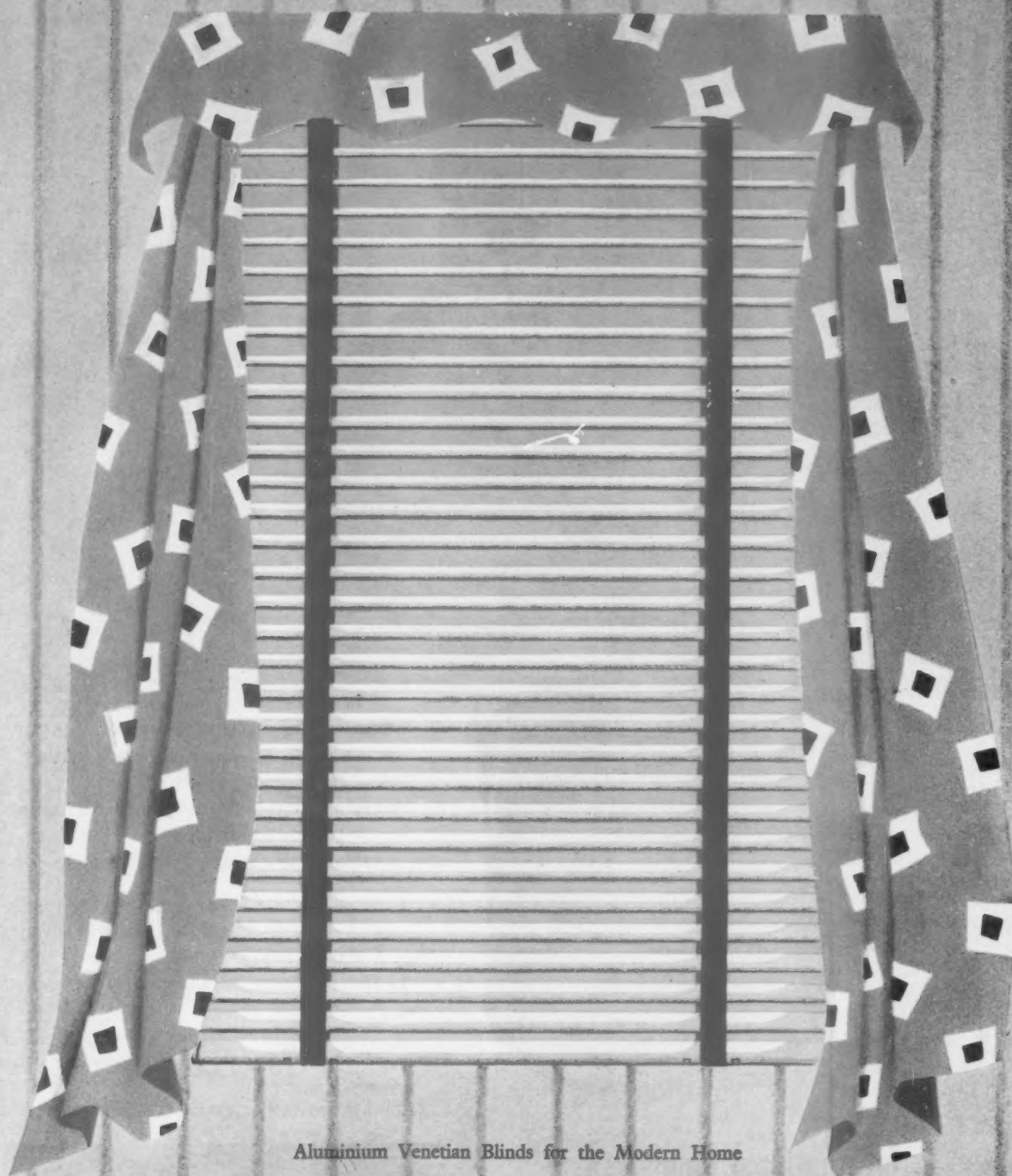
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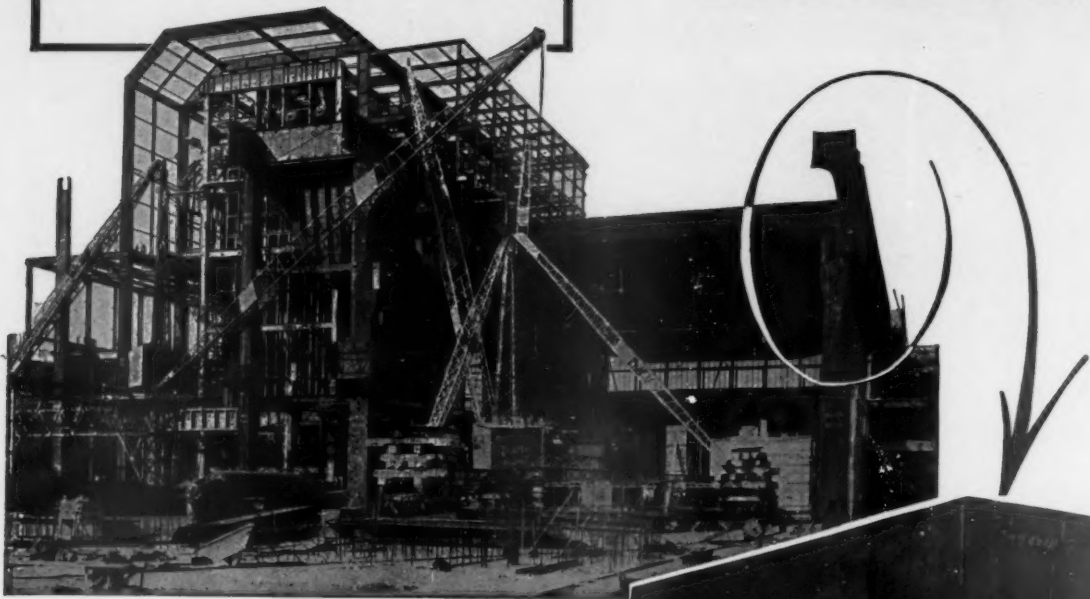
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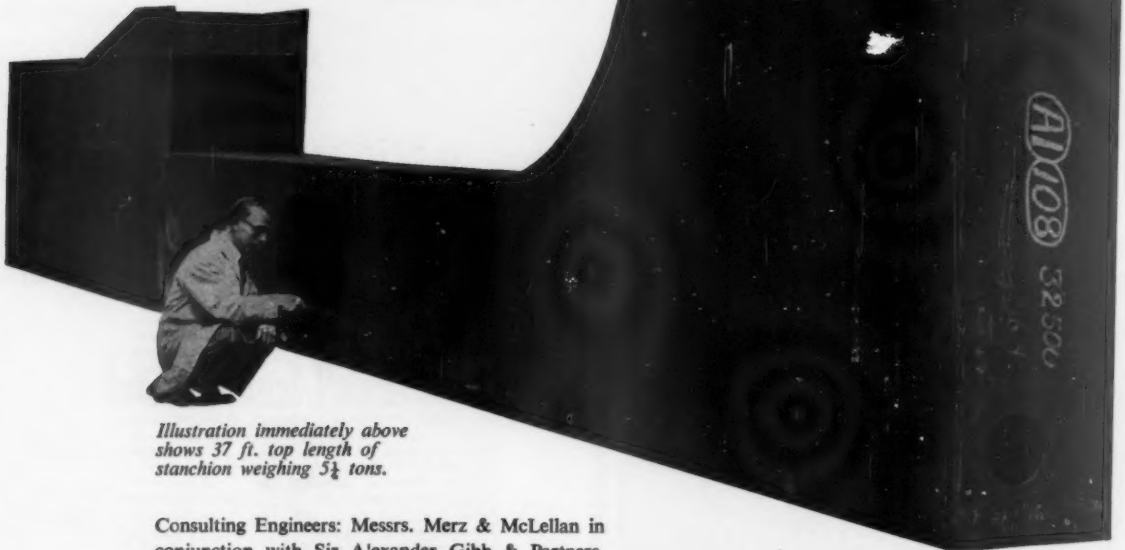


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DATA SHEET

NOTE:

Normal maximum length is 8'0" although in certain constructions lengths up to 10'0" are practicable.

Vitroslab cladding is made to size and cannot be cut after manufacture.

Price Panel	Nominal Thickness in.	Constrn. No.	Average Weight lb./sq.ft.	Type Reference	Max. Width in.	Max. Area sq. ft.	Cavity/ies in.	Average U-value	Nature of Backing or Lining	Brick Wall Equivalent (Thermal)
A	5/16	(12A)	3	VS/GB/1/16	48	16	single 1/16	0.6	glass	4½", solid, unplastered
	3/8	(12B)	3½	"	48	24	" "	"	"	
	7/16	(12C)	4½	"	48	36	" "	"	"	
	1/2	(12D)	5½	"	60	48	" "	"	"	
B	3/8	(15A)	3	VS/GB/1/8	30	10	single 1/8	0.54	glass	4½", solid, plastered
	7/16	(15B)	3½	"	39	20	" "	"	"	
	1/2	(15C)	4½	"	45	30	" "	"	"	
	9/16	(15D)	5½	"	50	40	" "	"	"	
	5/8	(15E)	5½	VS/GB/3/16	54	48	single 3/16	0.48	"	
	11/16	(15F)	5½	VS/GB/1/4	60	48	" 1/4	0.46	"	
C	1/2	(13A)	4	VS/HBL	48	16	single 1/16	0.54	3/16" hardboard	4½", solid, plastered
	9/16	(13B)	4½	"	48	24	" "	"	"	
	5/8	(13C)	5½	"	48	32	" "	"	"	
D	5/8	(28A)	4	VS/SHBB	48	16	1/16 & 1/8	0.44	3/16" hardboard	9", solid, unplastered
	11/16	(28B)	4½	"	48	24	" "	"	"	
	3/4	(28C)	5½	"	48	32	" "	"	"	
E	11/16	(14A)	4½	VS/3EAL	48	16	single 1/16	0.46	3/8" Asbesto-lux	
	3/4	(14B)	5½	"	48	24	" "	"	"	
	13/16	(14C)	6½	"	48	36	" "	"	"	
	7/8	(14D)	7	"	48	40	" "	"	"	
F	13/16	(20A)	5	VS/2QAL	48	16	single 1/16	0.43	1/2" Asbesto-lux	
	7/8	(20B)	5½	"	48	24	" "	"	"	
	15/16	(20C)	6½	"	48	36	" "	"	"	
	1	(20D)	7½	"	48	40	" "	"	"	
G	15/16	(29A)	5½	VS/2QSAB/18	48	16	1/16 & 1/8	0.36	1/2" Asbesto-lux	13½", solid, unplastered
	1	(29B)	6	"	48	24	" "	"	"	
	1.1/16	(29C)	7	"	48	36	" "	"	"	
	1.1/8	(29D)	7½	"	48	40	" "	"	"	
H	15/16	(30A)	4½	VS/SMHB/1/8	48	16	1/16 & 1/8	0.34	1/2" medium hardboard	
	1	(30B)	5½	"	48	24	" "	"	"	
	1.1/16	(30C)	6½	"	48	32	" "	"	"	
I	1.1/16	(31A)	5½	VS/2QSAB/1/4	48	16	1/16 & 1/4	0.33	1/2" Asbesto-lux	11", cavity, plastered ventilated
	1.1/8	(31B)	6	"	48	24	" "	"	"	
	1.3/16	(31C)	7	"	48	32	" "	"	"	
	1.1/4	(31D)	7½	"	48	40	" "	"	"	
J	1.1/16	(32A)	4½	VS/SMHB/1/4	48	16	1/16 & 1/4	0.31	1/2" medium hardboard	
	1.1/8	(32B)	5½	"	48	24	" "	"	"	
	1.3/16	(32C)	6½	"	48	32	" "	"	"	
K	1.5/16	(18A)	5½	VS/PSL/HH	48	16	1/16 & 1/2	0.25	1" Plyslab, fibre filled	15½", cavity, plastered, unventilated
	1.3/8	(18B)	6½	"	48	24	" "	"	"	
	1.7/16	(18C)	7½	"	48	36	" "	"	"	
L	2.5/16	(33A)	6½	VS/PSL/1H	48	16	1/16 & 1½	0.13	2" Plyslab, fibre filled	
	2.3/8	(33B)	7½	"	48	24	" "	"	"	
	2.7/16	(33C)	8½	"	48	36	" "	"	"	
M	2.5/16	(34A)	9	VS/PSL/2H	48	16	single 1/16	0.21	2" Plyslab Vermiculite filled	20", cavity, plastered, unventilated
	2.3/8	(34B)	9½	"	48	24	" "	"	"	
	2.7/16	(34C)	10½	"	48	36	" "	"	"	

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See pages 158 to 167

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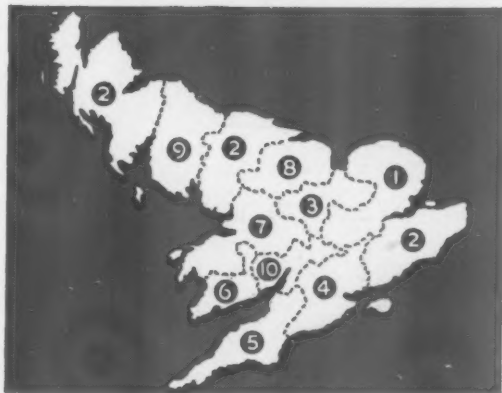
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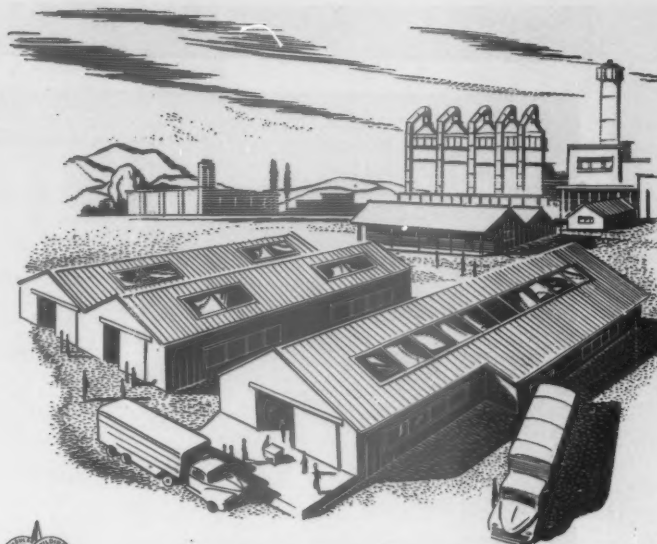
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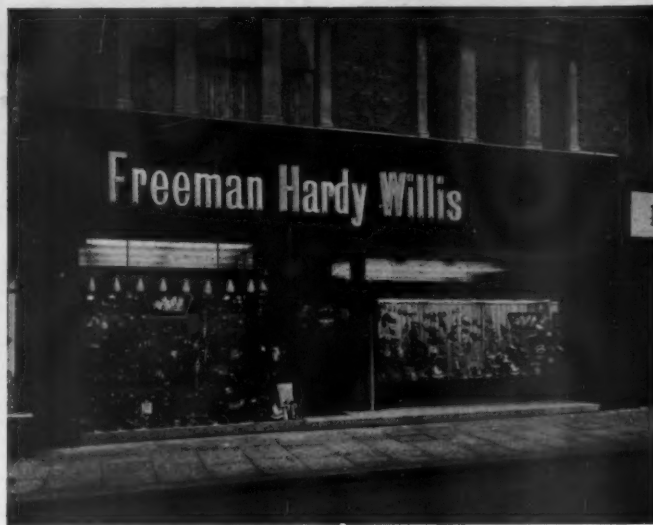
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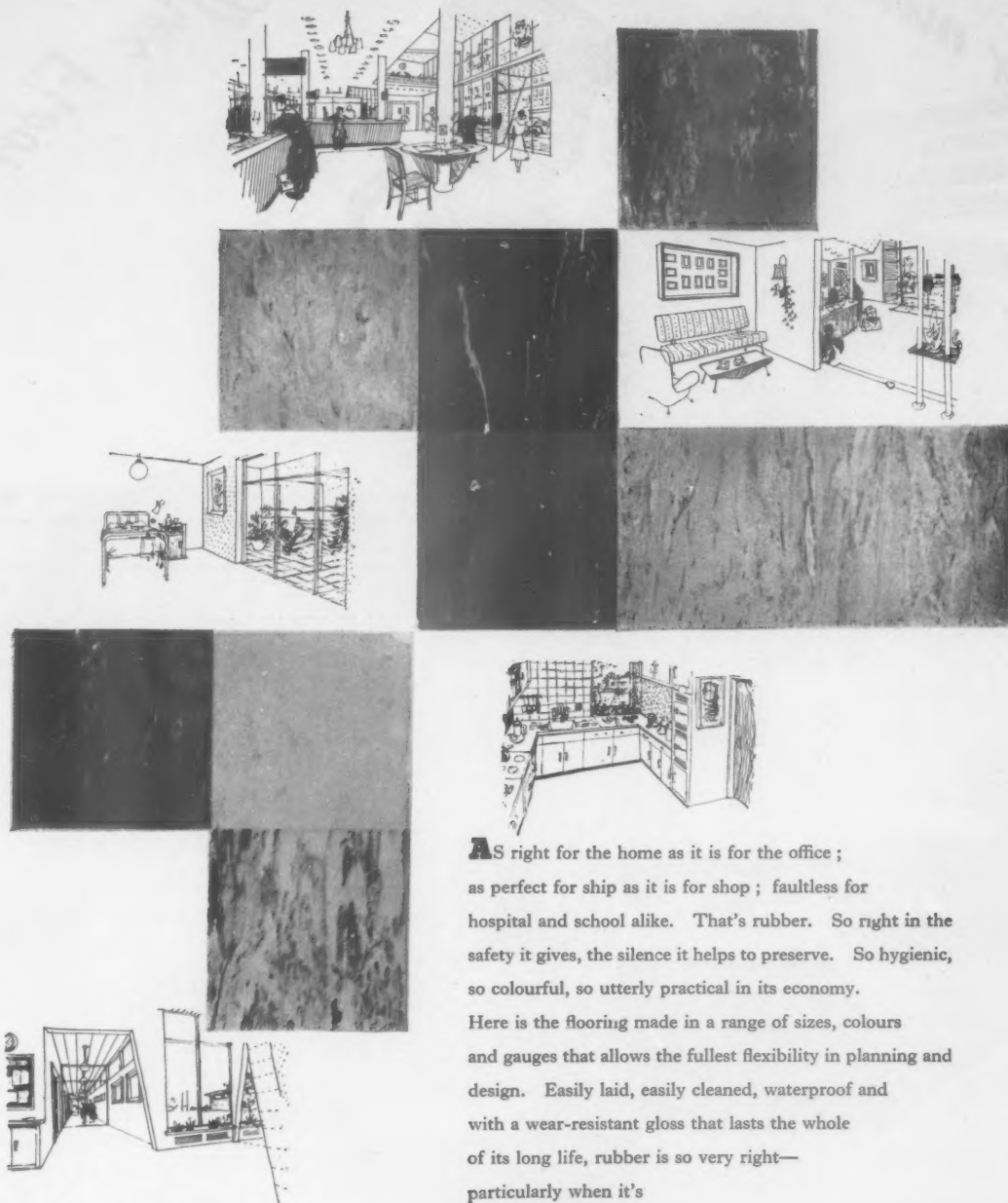
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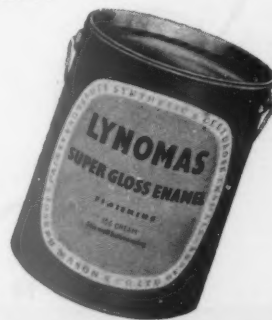
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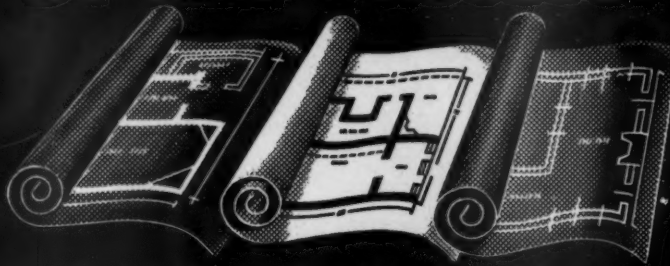
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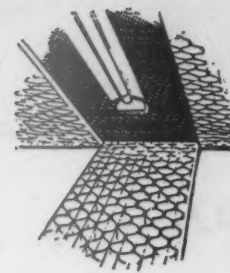
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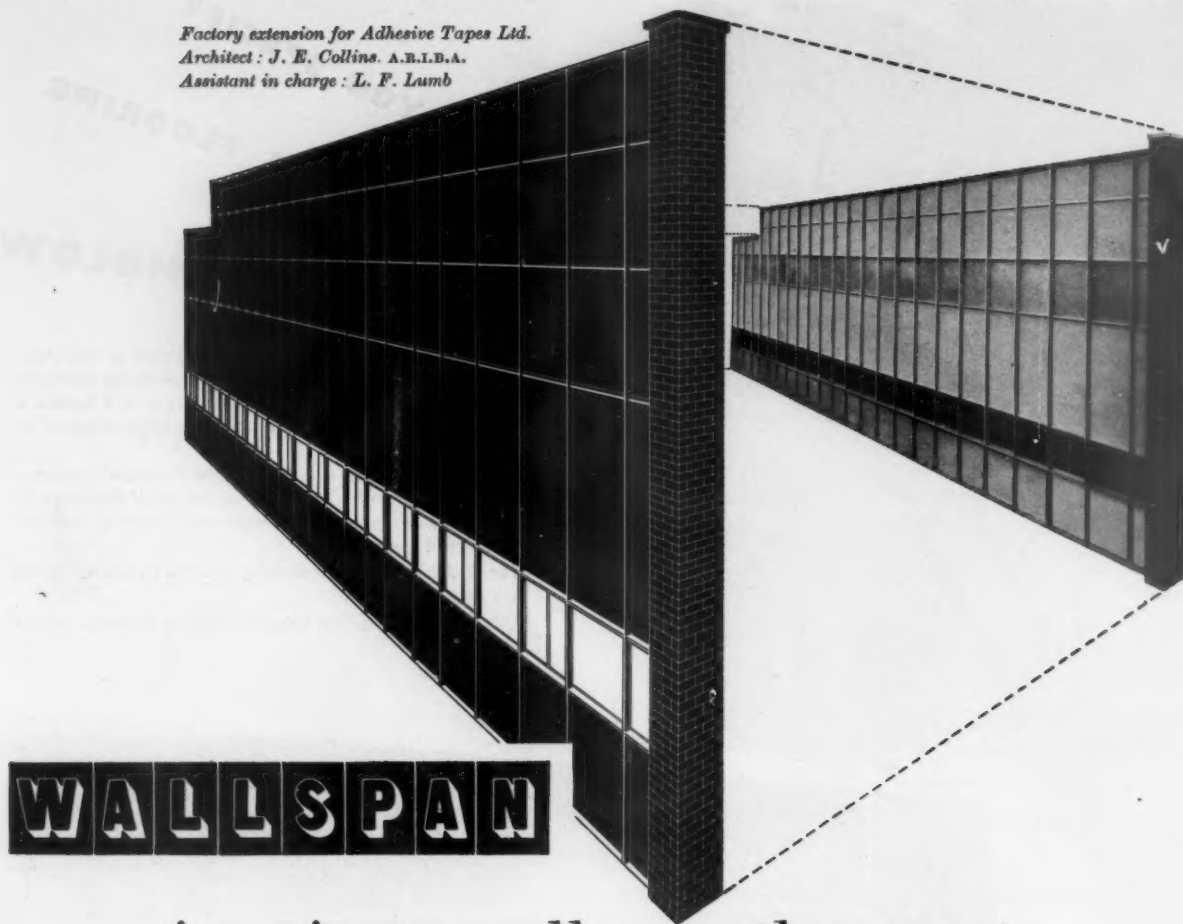
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Factory extension for Adhesive Tapes Ltd.
Architect : J. E. Collins. A.R.I.B.A.
Assistant in charge : L. P. Lumb



WALLSPAN

is going up all over the country

Re-erection of Wallspan solves future extension problem of new factory bays

Adhesive Tapes Ltd. are building big new extensions to their Boreham Wood factory. The first of these, illustrated here, will be extended still further in a few years' time. With this in mind, Architect J. E. Collins, A.R.I.B.A., chose Wallspan for the end walls of this bay. The installation is permanently up now. But it will be a relatively simple job to take down and re-erect when the bay is lengthened. There will be no waste of materials, a minimum of labour cost.

Another interesting feature of this Wallspan wall is the ingenious extensions of the 9" mullions to form a balustrade to the flat roof behind. High insulation is obtained by using Plyglass for the upper lighting and Asbestolux double panels ('U' value less than 0.2) for the solid in-fillings. Mill finish and aluminium windows ensure negligible maintenance costs. Further extensions, also using Wallspan, are now being built.

Wallspan answered a lot of problems in these extensions. Architects are finding this so on other buildings all over the world.

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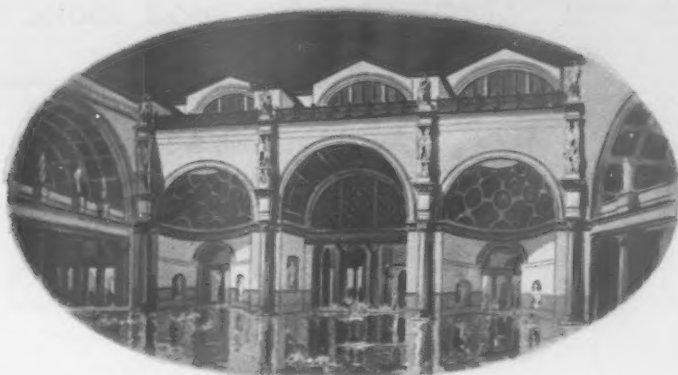
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Interior View of Factory

This is a modern factory for wool spinning and the process calls for fairly high humidity together with controlled temperature.

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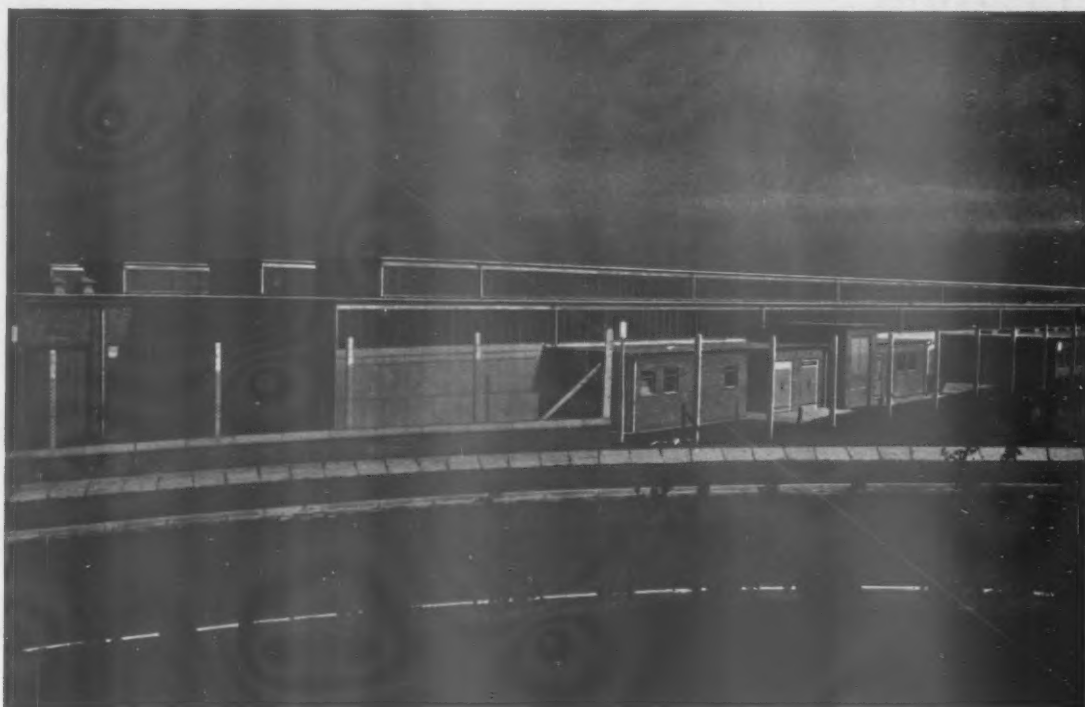
which would otherwise occur under such conditions.

The thermal insulating and other special properties of double patent glazing enabled the Architects to air-condition the factory and thus achieve the most advantageous working conditions both for the process and the operatives.

Architects: William Holford & Partners, Liverpool & London

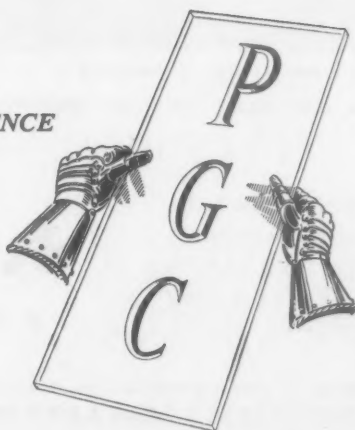
SPECIFICATIONS

**DOUBLE PATENT GLAZING IN THE NEW
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THE NORTH EASTERN TRADING ESTATES LTD.**



External View of the Factory

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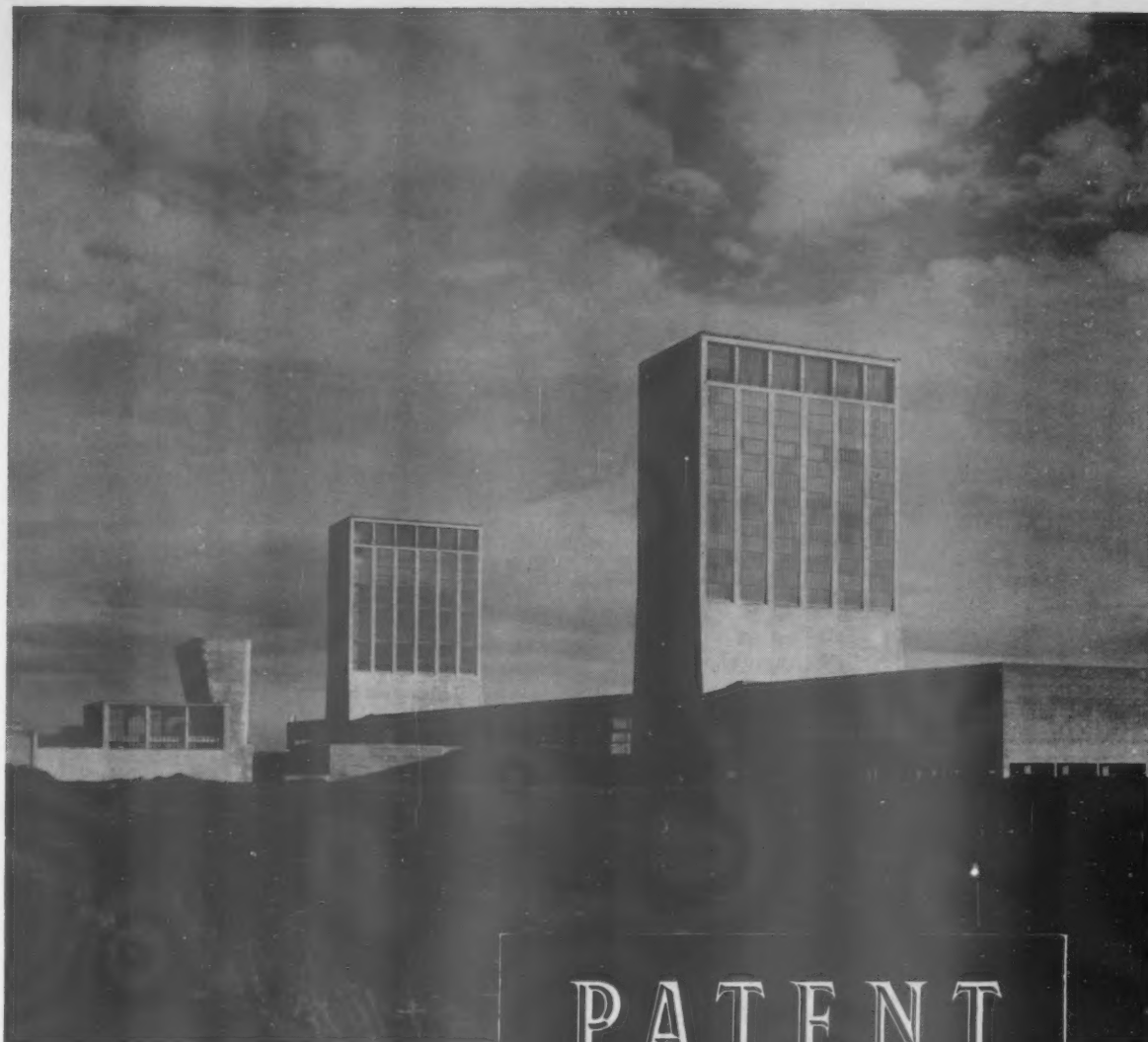
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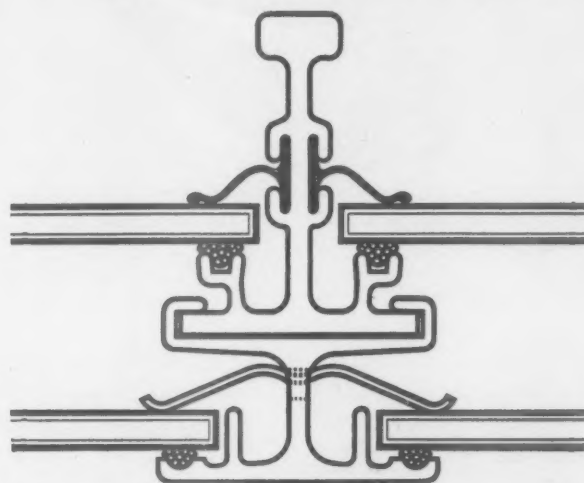
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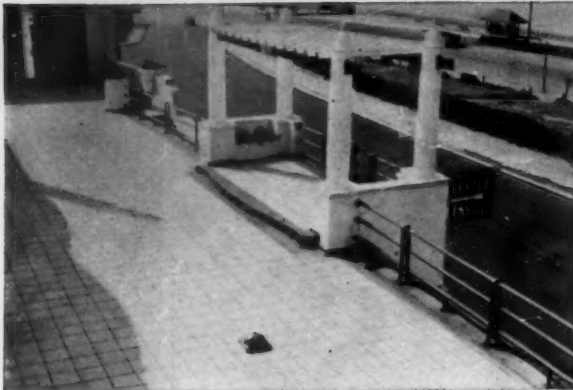
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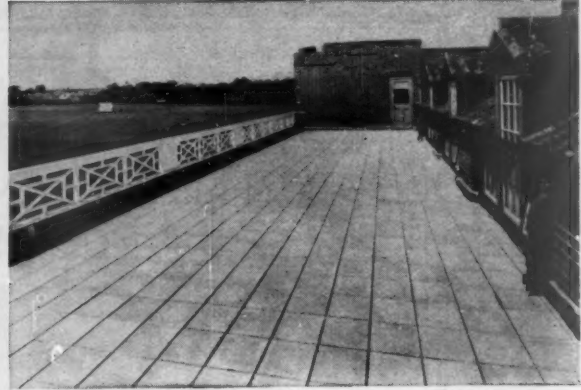


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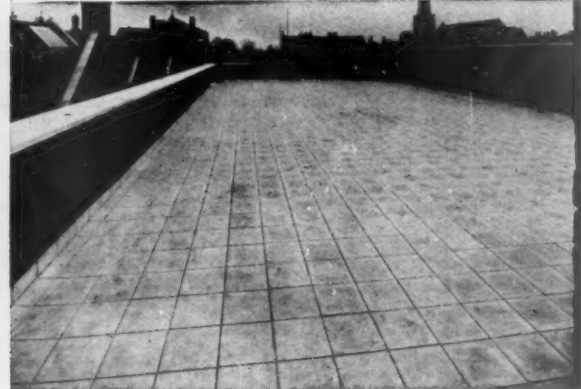
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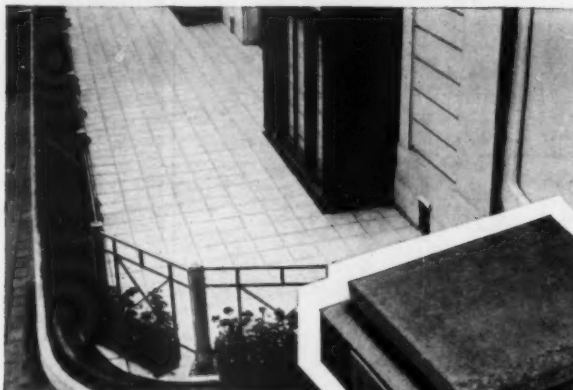
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3



4



5

1. West Park Pavilion, Jersey, C.I. Architects: Blampied & Biggar.
2. Sports Pavilion, North Wembley. Architects: Duke & Simpson, F.R.I.B.A.
3. "Showboat," Sandbanks, Bournemouth. Residence of the Architect, A. J. Seal, Esq., F.R.I.B.A.
4. Latymer Foundation Upper School, Hammersmith. Gymnasium Roof. Architects: Chesterton & Sons.
5. Balcony at United Club, Jersey, C.I.

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R. 160

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Four simple and robust components maintain the required relationship between flow temperature in the heating circuit and any outside air temperature.

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An **Immersion Thermostat** measures water temperature in the mixed flow main of the heating circuit.

The **Electronic 'Aquatrol' Panel** contains components which co-ordinate signals from both thermostats and regulate the action of valve motor control relays.

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HOT WATER SUPPLY

The 'Aquatrol' panel receives signals from an immersion thermostat situated in the secondary flow from the calorifier. The panel then positions a modulating motorised valve on the primary water supply to the calorifier, thus maintaining a substantially constant temperature of water for baths, showers, etc.

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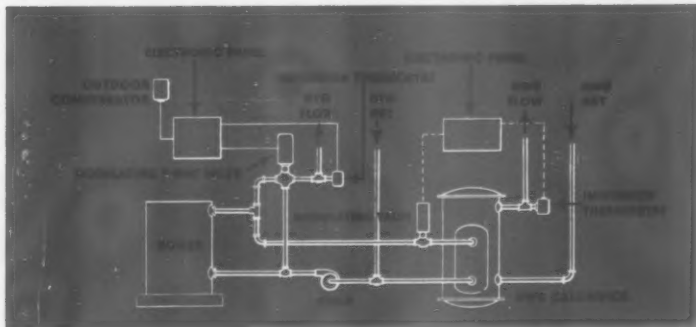
With acknowledgments to:

The University College Hospital authorities; Messrs. Clutton, Chartered Surveyors; and Messrs. G. N. Haden & Sons Ltd., Heating & Ventilating Engineers.

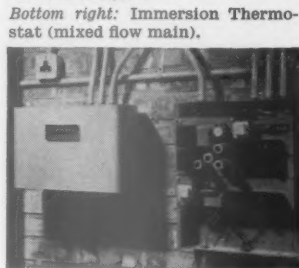


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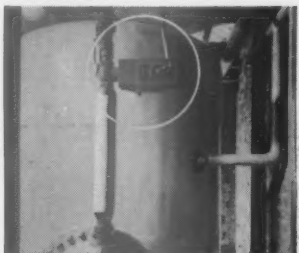
First in Controls



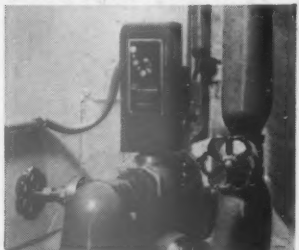
Top left: Outdoor Compensator (northern aspect).



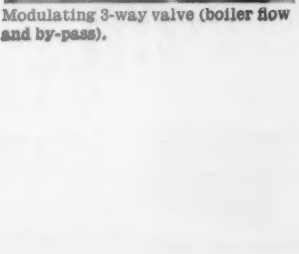
Bottom right: Immersion Thermostat (mixed flow main).



'Aquatrol' Panels (heating and hot water service).



Modulating Valve (hot water service primary supply).



Modulating 3-way valve (boiler flow and by-pass).



keeping heat in

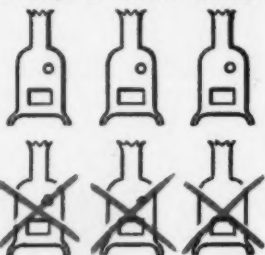
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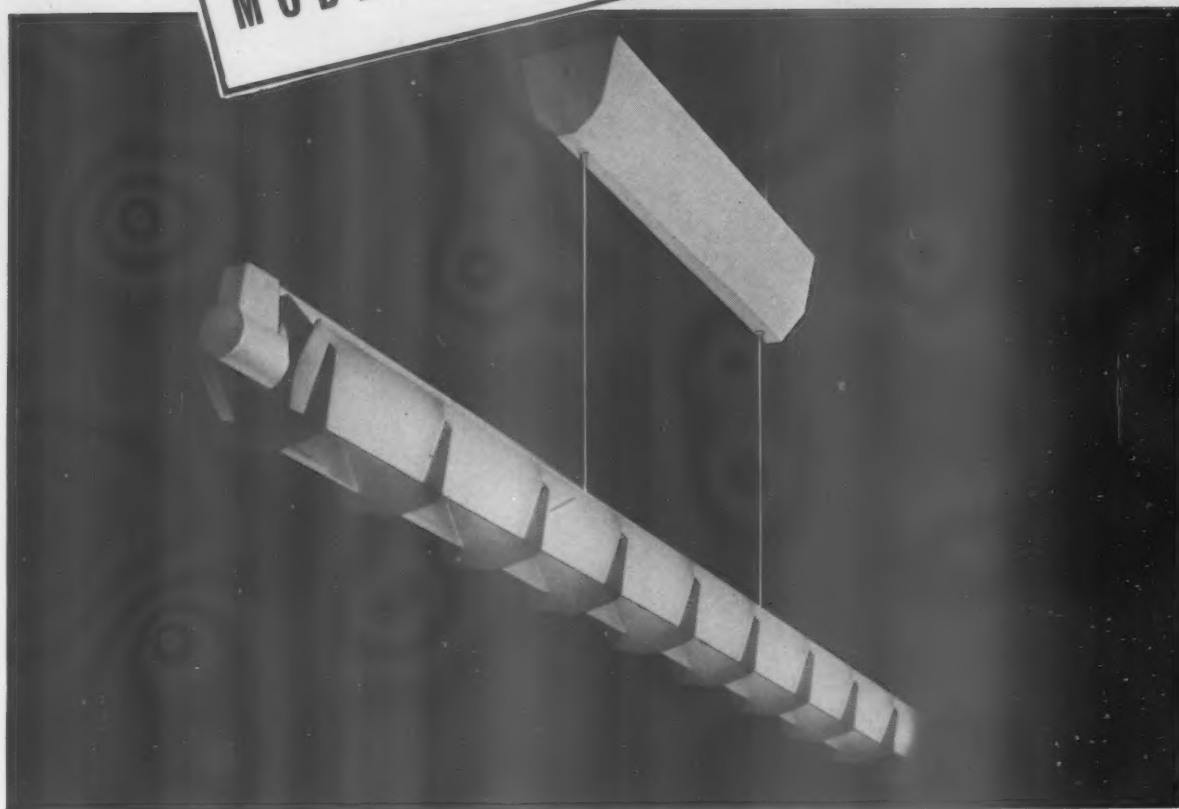
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A complete self-service counter has been installed for the British Transport Hotels and Catering Services at Brighton Station refreshment rooms (see photograph). The counter contains a tea and coffee service unit, consisting of a 4-gallon coffee machine, two 2-gallon milk urns and a recessed tea pot warmer. Also provided are a gas heated service top hot closet, rack storage and cold sections and a stainless steel waitress tray shelf. In order to economise on floor space, the counter shown was designed in collaboration with the Architects.

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Offices of the Loewy Engineering Co. Ltd.
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Business better than usual

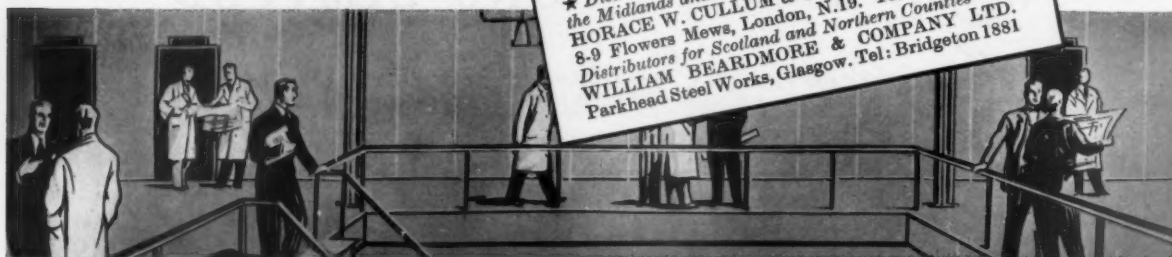
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Even those who jeer never stop to ask what makes a 'tired business man' tired. As often as not, the answer is just plain noise. Whether he works in the back room or the front office, there's a daily battle with din which exhausts energy, lowers efficiency and, in the end, impairs health. But in *this* office the battle has been won—permanently. A ceiling of Acousti-Celotex reduces sound to comfort level by mopping up the unwanted

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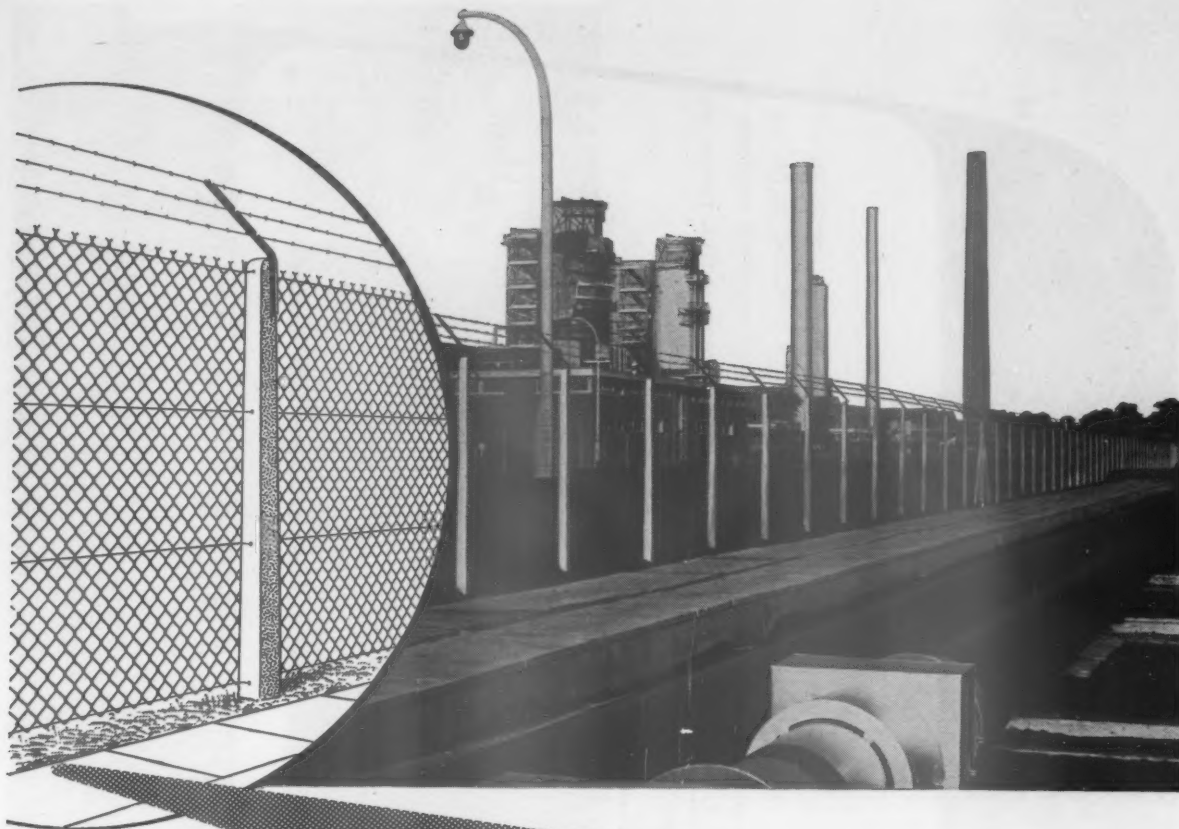
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On the right is a reproduction of part of the Staff Luncheon Room and it will be noticed that all Table Tops are in Waverite in several pastel shades with comfortable and durable Vynide upholstered chairs. Latex Foam seat interiors were used to obtain maximum comfort.



With acknowledgments to Dixon Matthews & Co., Newcastle-upon-Tyne.



With acknowledgments to Dixon Matthews & Co., Newcastle-upon-Tyne.

In addition, for their Apprentices' Lecture Room at their Heaton South Works, our technicians devised the special tip-up seating complete with "drop-down" Palettes. The Lecture Room is illustrated on the left. Our Technical Staff is available at any time to meet the special requirements of Architects.

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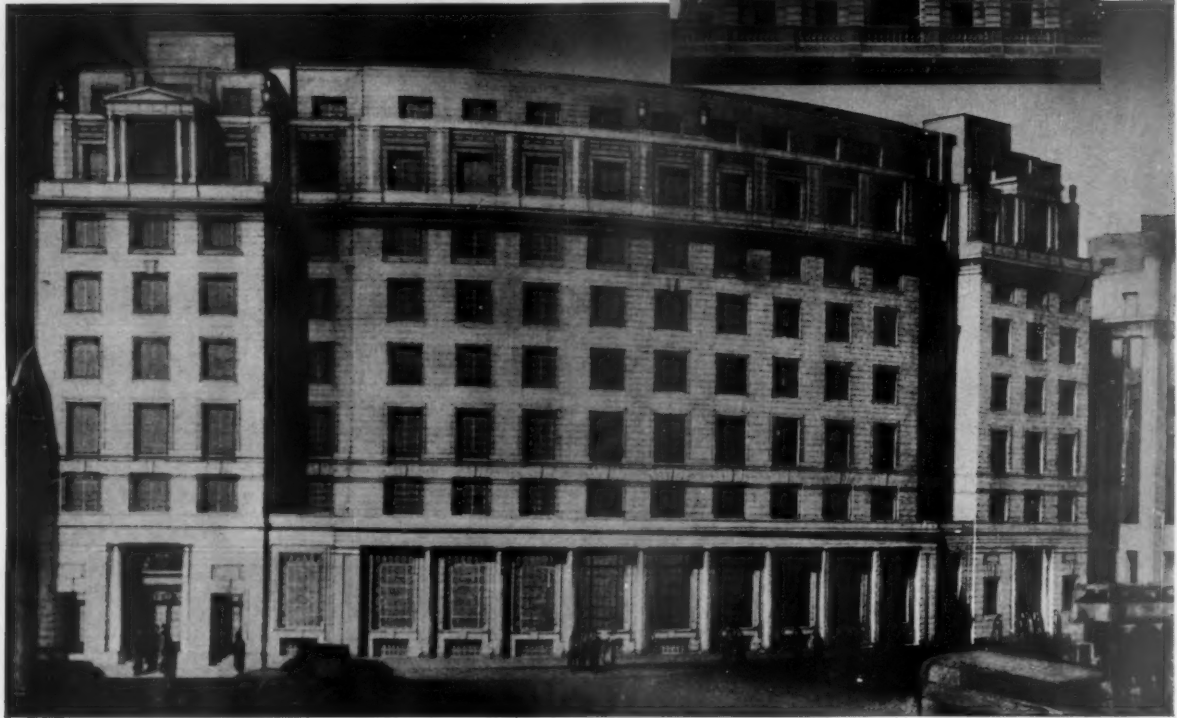
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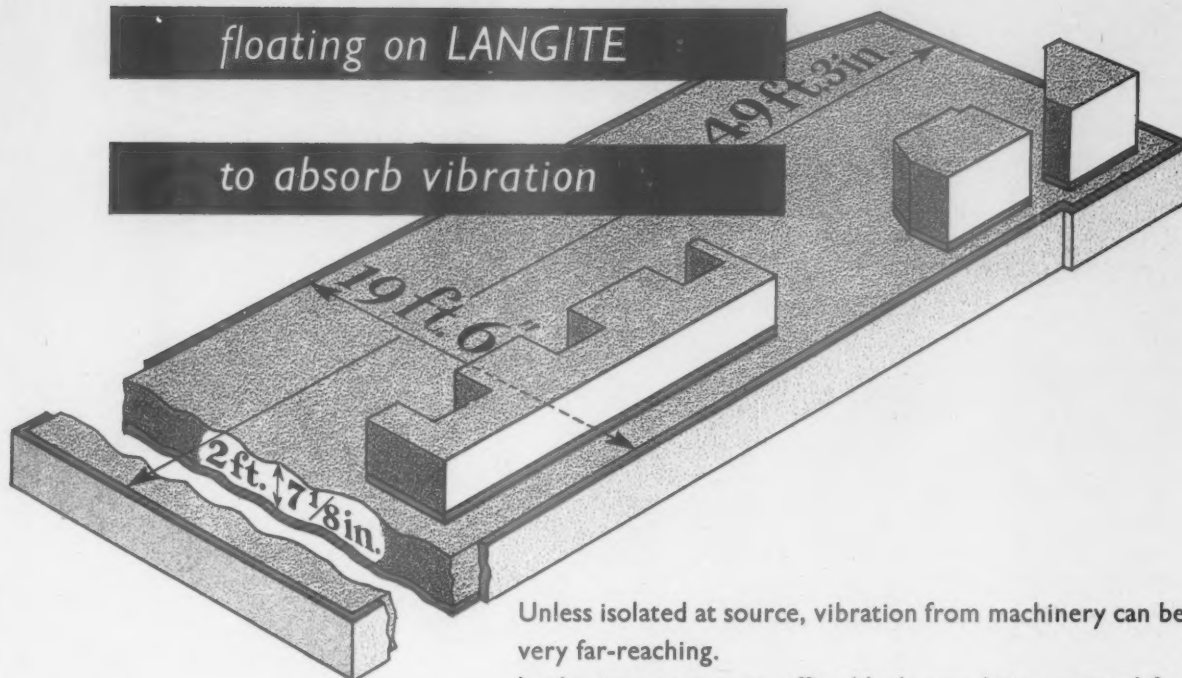
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to absorb vibration



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The Glass Age Development Committee

A committee of architects and engineers, convened by Pilkington Brothers Limited, is making proposals for the development of the Soho Area, which are being published in these advertisements.

This Glass Age Development Committee consists of:

G. A. Jellicoe, F.R.I.B.A., Edward D. Mills, F.R.I.B.A., Ove Arup & Partners.

THE SOHO PROJECT—4

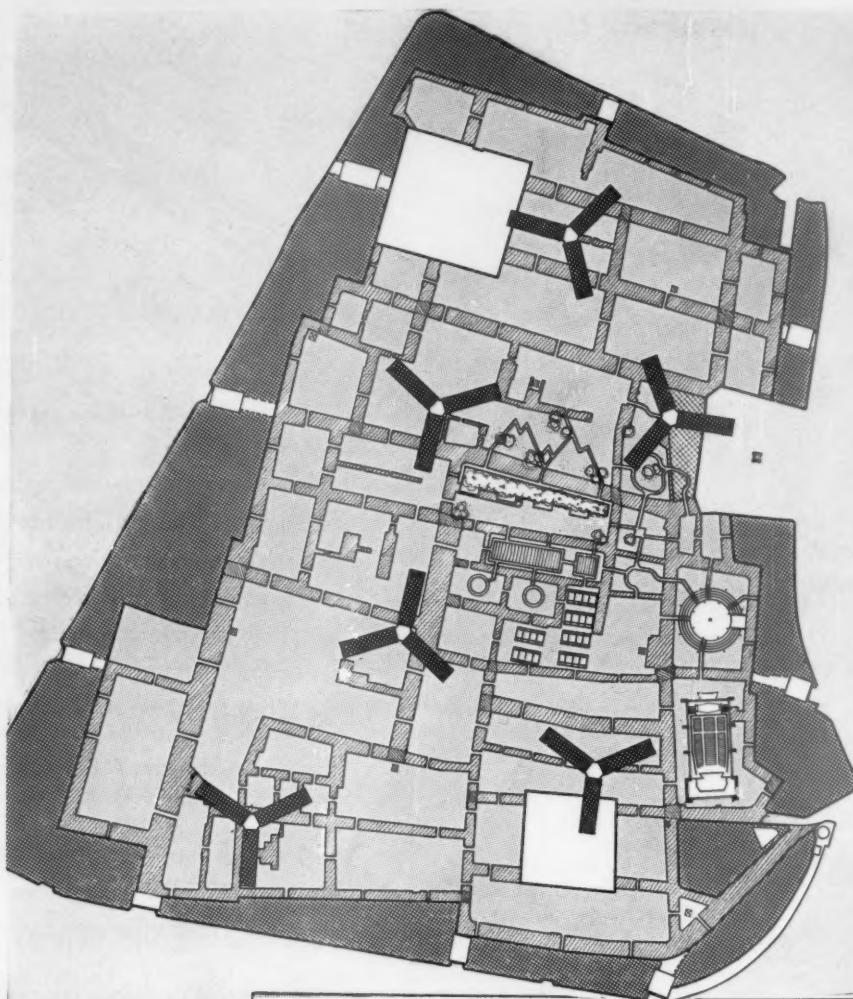
The three main development proposals are:

- i To create a great weather-protected and air conditioned shopping and office precinct, free of traffic but accessible for goods, private cars, helicopters, and existing public communications.*
- ii To create six 24-storey blocks of good-class residential flats.*
- iii To create a spacious open-air entertainment centre, as a supplement to the existing indoor entertainment.*





All the proposals made for this project are practical possibilities. The techniques and materials to execute them exist now. A preliminary survey of the project and details of the Sub-Basement and the Ground Floor or Street Level have already appeared. Final details are given on these two pages.

GARDEN LEVEL

This shows the residential flats rising from the Soho water gardens. The design of the flats is based on a combination of maisonettes and flats, which, by reducing the number of stops, reduces the number of lifts required. This makes the height of the tower economical in relation to the central core. The private helicopter garages are seen at the top of the building. Helicopters will drive straight into their own garages without the necessity of running on the flat roof. This flat roof covers a general purpose helicopter park.

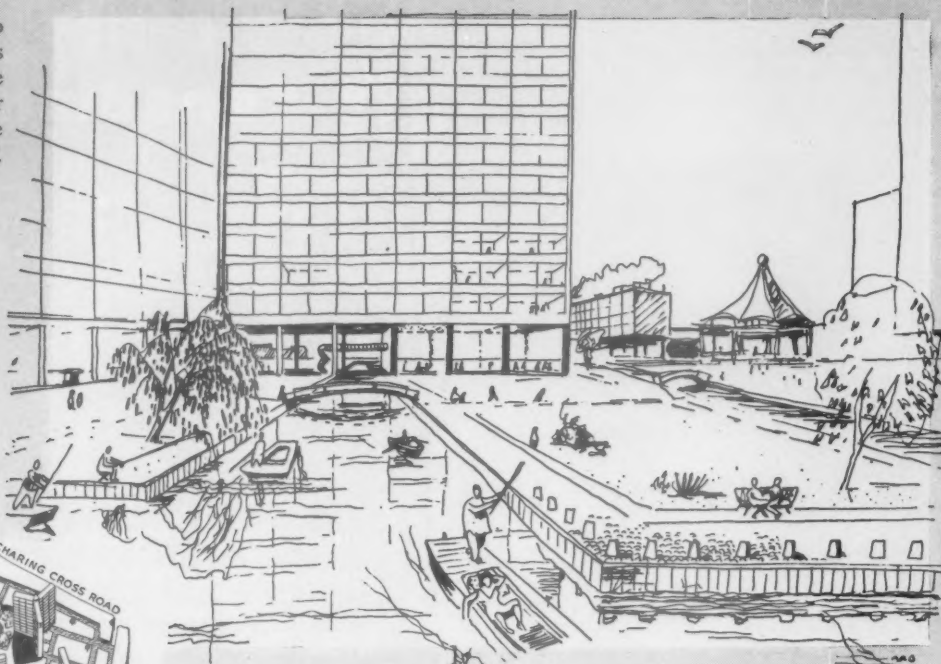


KEY TO GARDEN LEVEL PLAN

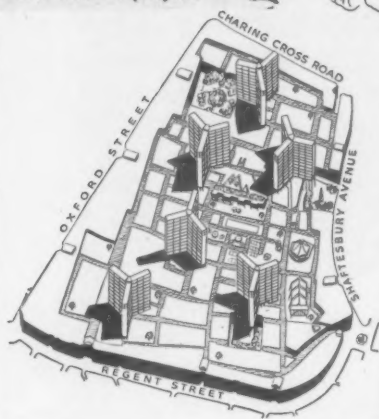
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|  Towers. |  Gardens. |
|  Helicopter Landing Stages. |  Lifts from Lower Basement. |



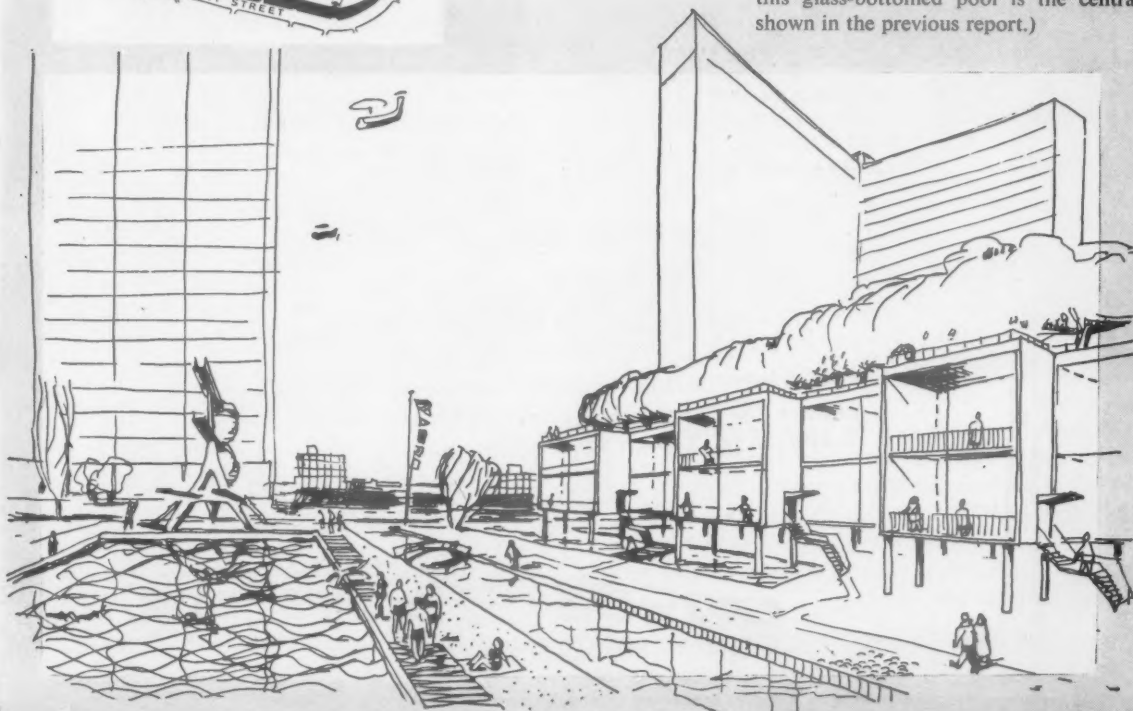
The view across the Soho gardens looking towards the private garden of the flats. Note the trees, for which soil pockets have been designed in the roof.



General view of project



Another view of the Soho gardens looking across the bathing pool, with its artificial waves. (Below this glass-bottomed pool is the central market, shown in the previous report.)



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This advertisement is one of a series featuring Canadian Spruce, White Pine, Western Red Cedar, Red Pine and Pacific Coast Hemlock.

T.I.M. - 2



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This illustration shows one of the four eleven-storey blocks of THE ACKROYDON ESTATE FLATS which are fitted with CRITTALL STANDARD METAL WINDOWS POSITIVELY RUSTPROOFED by the hot-dip galvanizing process.
Dr. J. L. Martin F.R.I.B.A. Architect to the London County Council.

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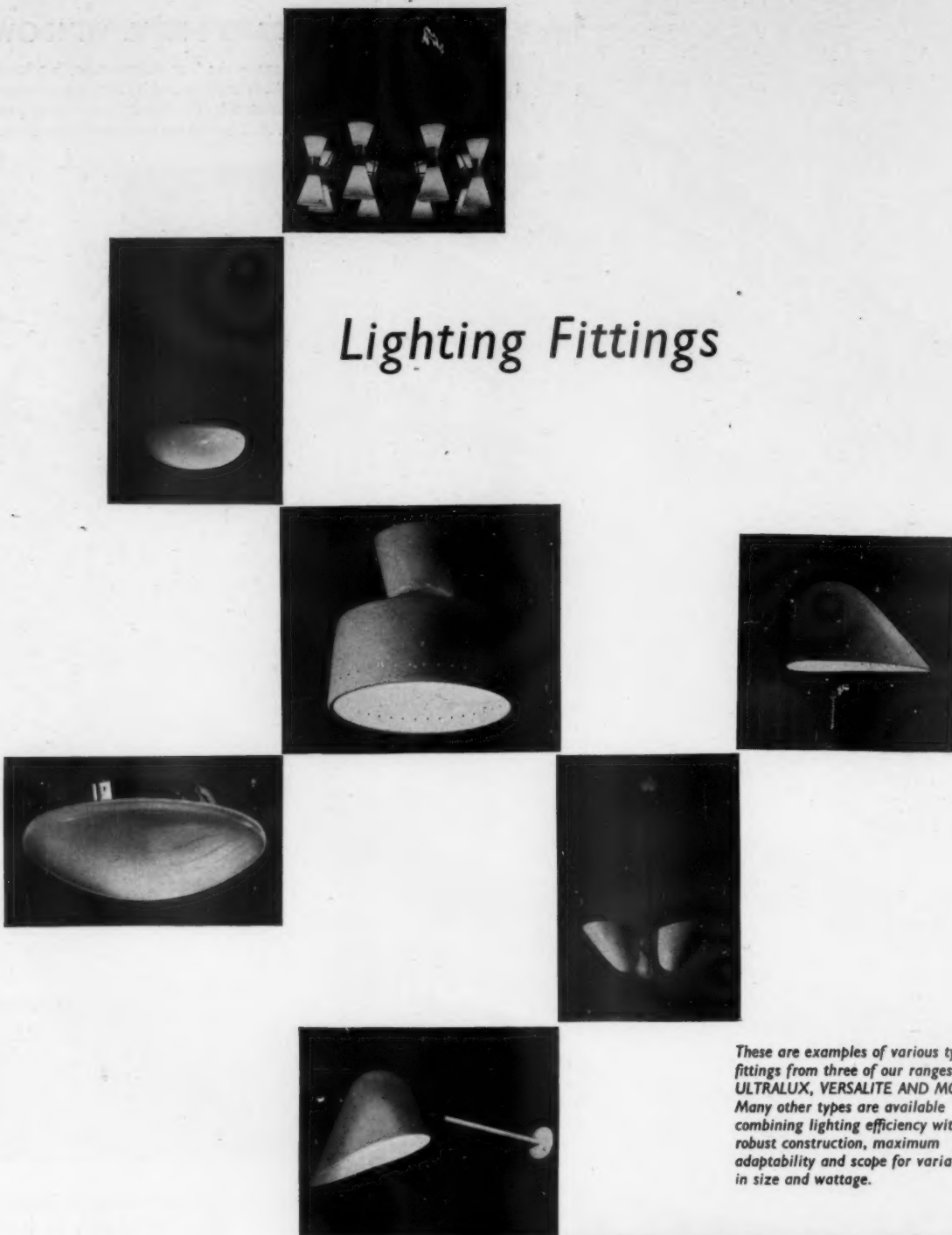
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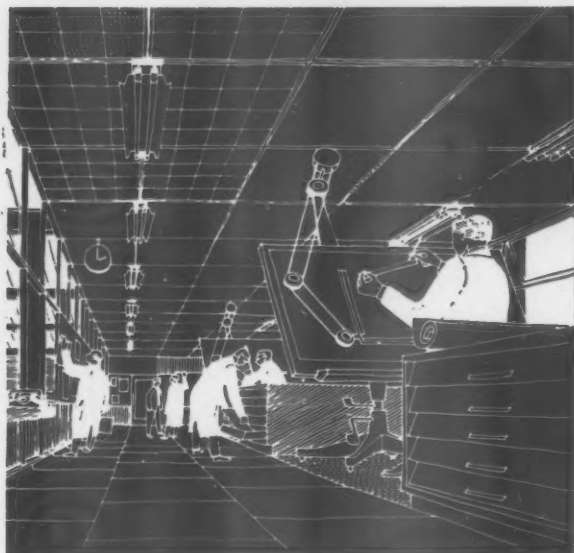


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The New 'Invertrunking' by Mazda



Supports conventional ceiling boards in suspended ceiling.



This new extruded aluminium cable-conduit has been designed to carry lighting fittings, electrical fixtures and cables. It supports ceiling boards, and can be built into structural ceilings.

Wiring can be laid in the Invertrunking after the ceiling is in position — even after it is decorated — and easily altered from time to time.

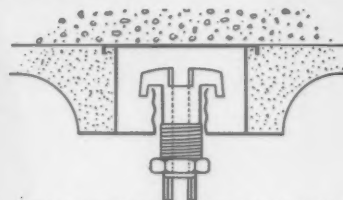
Invertrunking is jointed by aluminium channel sections, and there are Angle, Tee and Crossover pieces.

Literature on application.

Wiring features

- ★ New 'Parablock' connector permits rearrangement of lighting layout and changes of fitting, without altering main circuit wiring.
- ★ Special $\frac{1}{2}$ " conduit Tee bolts support lights and other fittings, directly or on chain or conduit.
- ★ Takes any Mazda fluorescent or tungsten lighting fitting and other electrical equipment, such as clocks, loudspeakers, etc., provided with $\frac{1}{2}$ " conduit fixing.

'Invertrunking' is a Registered Trade Mark (Patent App. No. 34581/53)



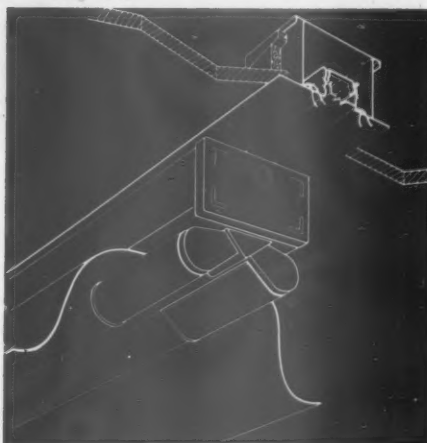
Flush on surface of primary ceiling with shallow plaster cove.



Cast in situ.



In conjunction with expanded metal for deep coves.



Mazda F1160
Fluorescent Fitting with Invertrunking.

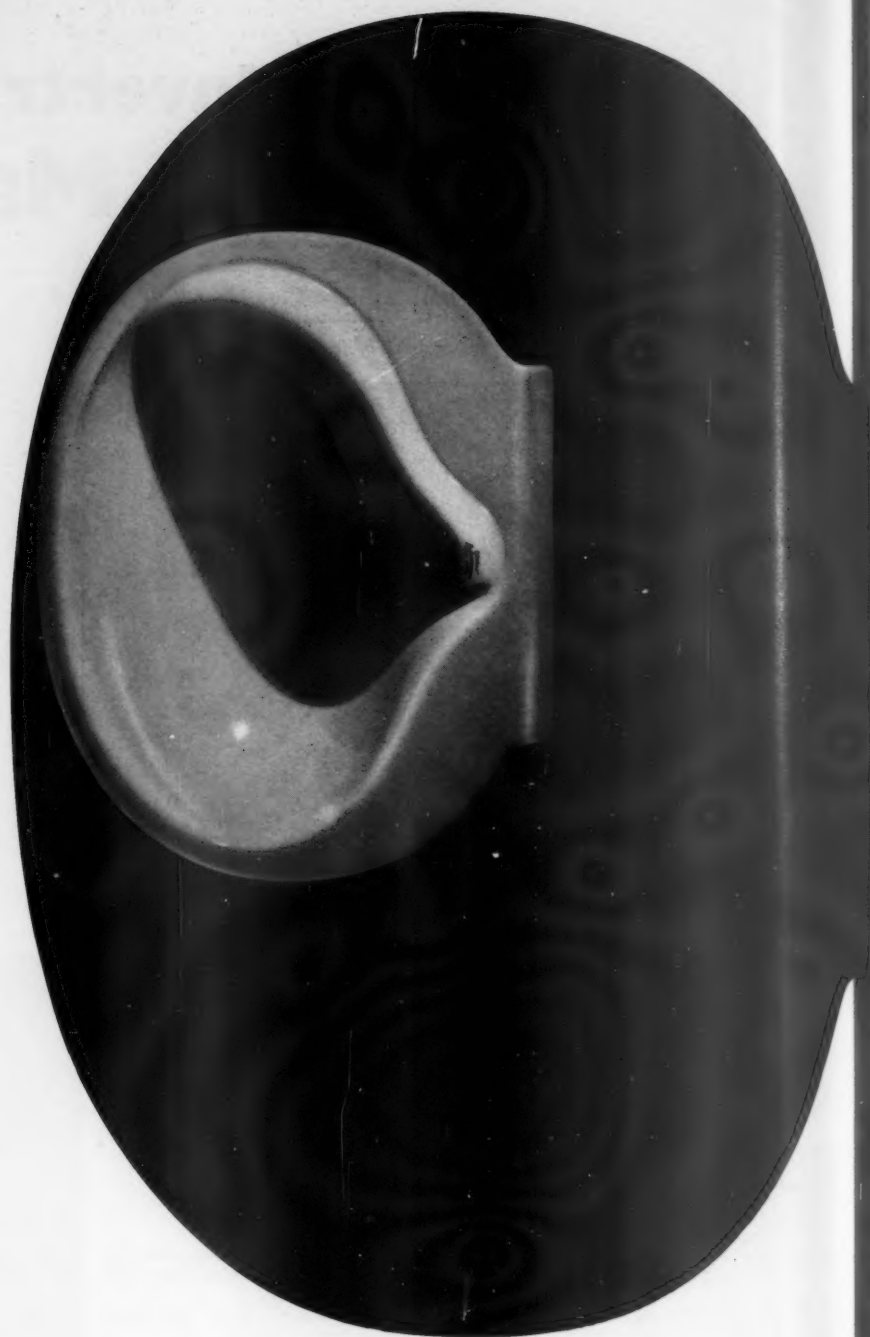


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It's easy to concentrate in a room that's comfortably warm. For the health and vigour of children and teachers alike, an even, comfortable temperature is a necessity. And old schools, so many of them

sturdily built, would take on a new lease of life in the community's service if good heating appliances were installed. New solid-fuel appliances are an excellent answer to the problem.

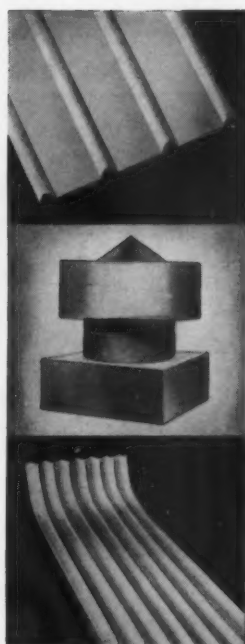
"New warmth for old schools"—just published by the Coal Utilisation Council—shows how the heating in small schools of one, two and three classrooms can be raised to modern standards with low capital expenditure and minimum running costs. For a free copy of this book write to the Publications Department, Coal Utilisation Council, 3 Upper Belgrave Street, London, S.W.1.

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A comparison
of installation costs...
between an Ascot
plus open fire
and open fire plus
back boiler

An analysis of the actual costs of installing these two popular water heating systems shows that Ascot multipoint heaters are cheaper than back fire boilers in every case but one.

The figures in the chart were not specially prepared. They are from bills of quantities of schemes which had already been completed by an eminent architect before the analysis was contemplated. Examination of the plans shows that because the Ascots

could be sited nearer to bathroom and kitchen draw-off points than the back fire boilers and do not require a flow and return draw-off system, pipe runs were considerably shorter and simpler. This is quite usual.



	BUNGALOW	HOUSE	4 STOREY FLATS	8/10 STOREY FLAT
ASCOT 709 Cost of Water Heater, Coke Grate, tile surround and curb—equipment and installation.	£63 · 9 · 10	£72 · 5 · 1	£67 · 11 · 11 (A)	£65 · 1 · 1 (B)
ASCOT 715 Cost of Balanced Flue Water Heater with air box and flue ducting, Coke Grate, tile surround and curb—equipment and installation.	£74 · 7 · 4	£83 · 1 · 4	£78 · 9 · 5 (A)	£75 · 16 · 1 (B)
BACK FIRE BOILER Cost of Back Fire Boiler, Coke Grate, tile surround and curb—equipment and installation.	£73 · 15 · 4	£87 · 19 · 5	£82 · 4 · 9	£101 · 5 · 8
BACK FIRE BOILER Cost of Back Fire Boiler, Coke Grate, tile surround and curb, electric immersion heater and lagging of pipes and cylinder—equipment and installation.	£97 · 19 · 3	£118 · 11 · 10	£114 · 18 · 2	£140 · 10 · 9

Cost of (A) is higher than (B) due to longer pipe runs.



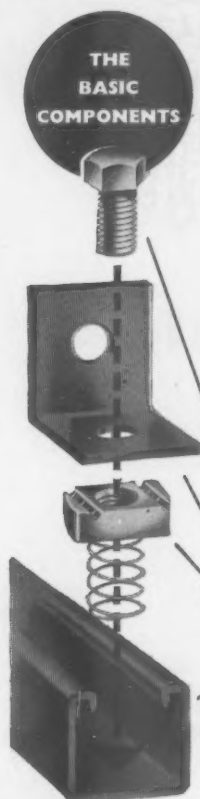
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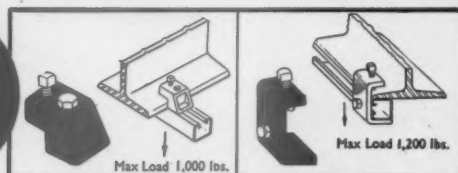
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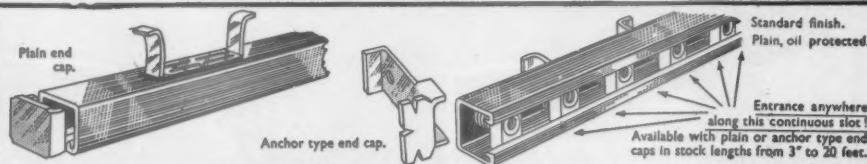


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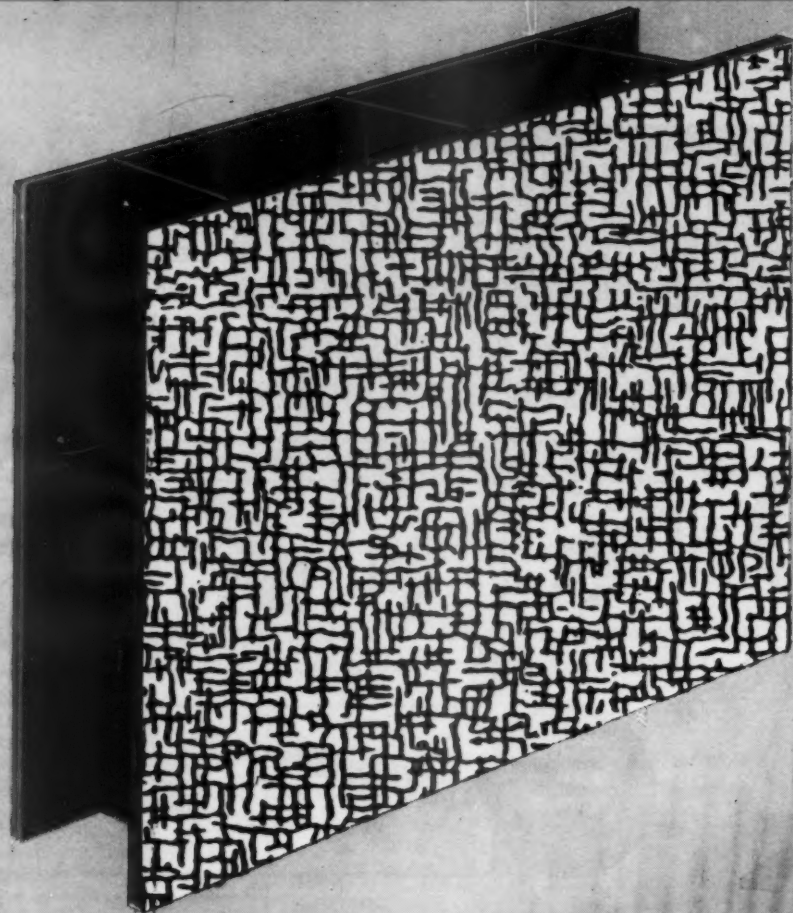
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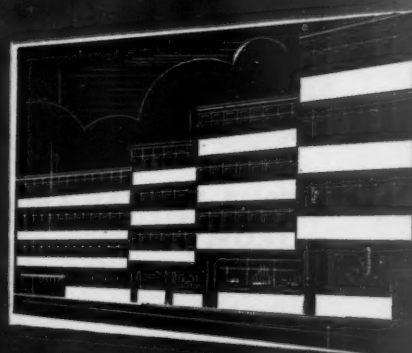
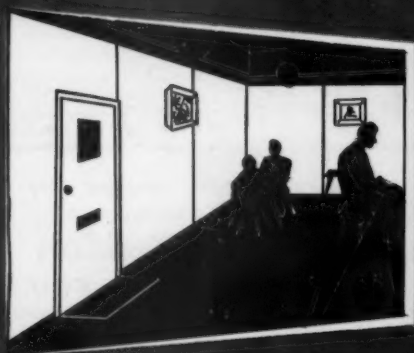


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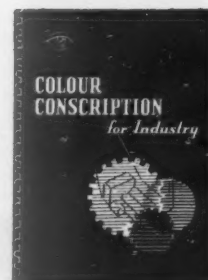
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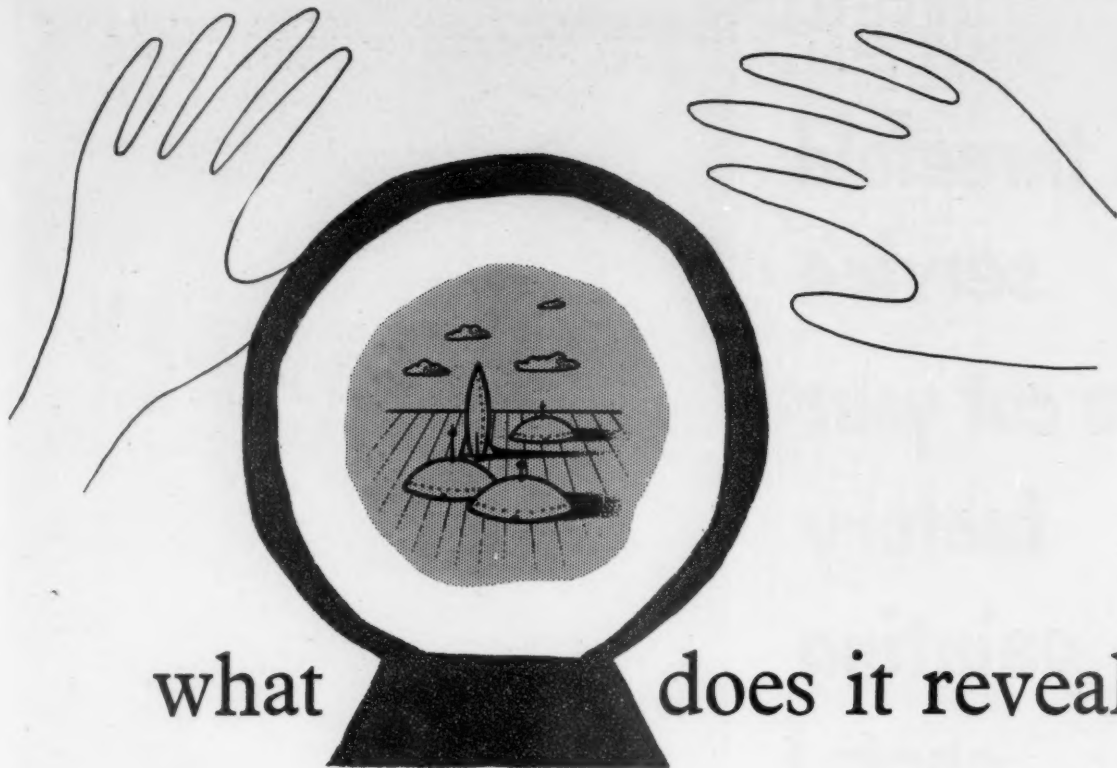
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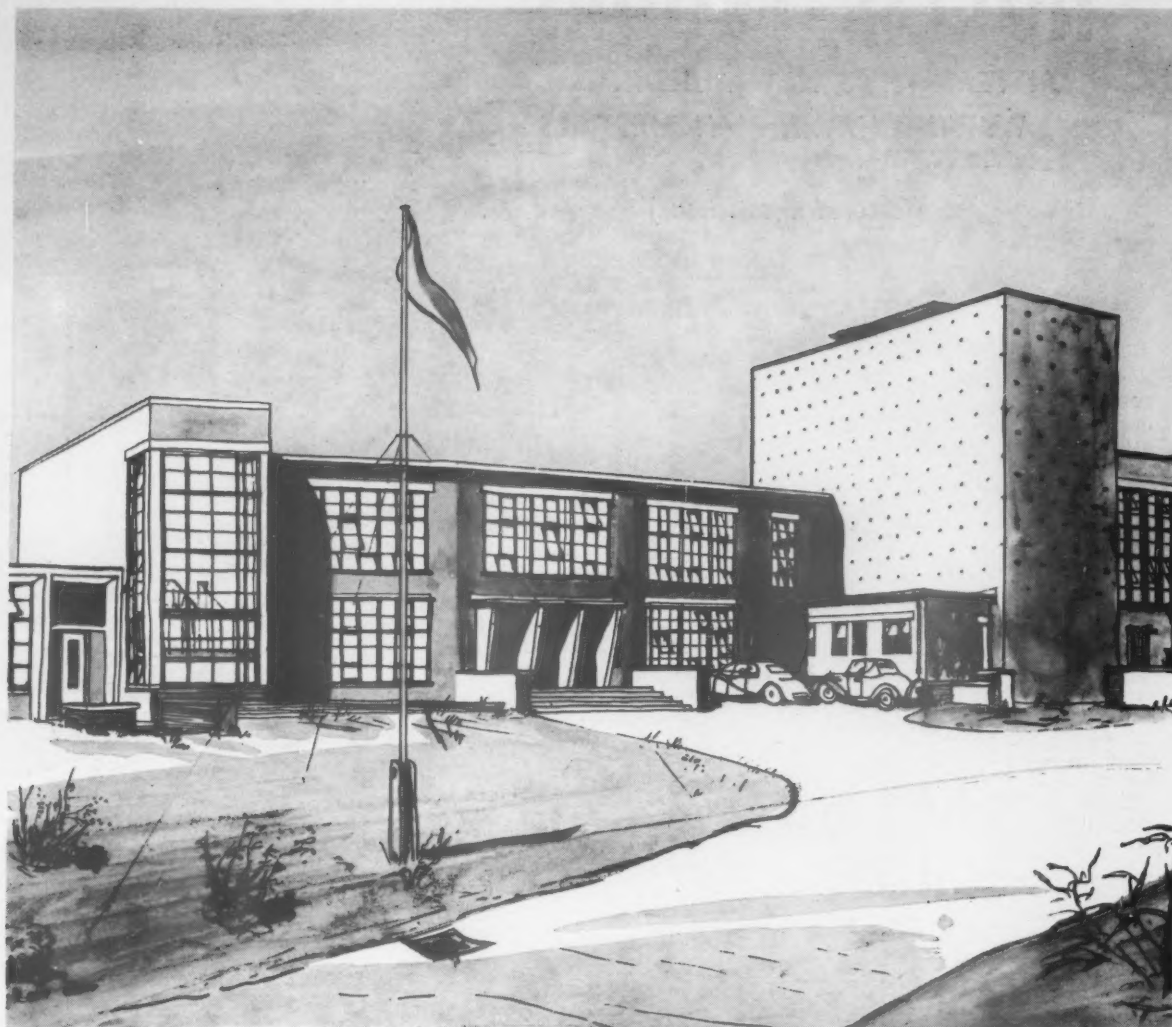
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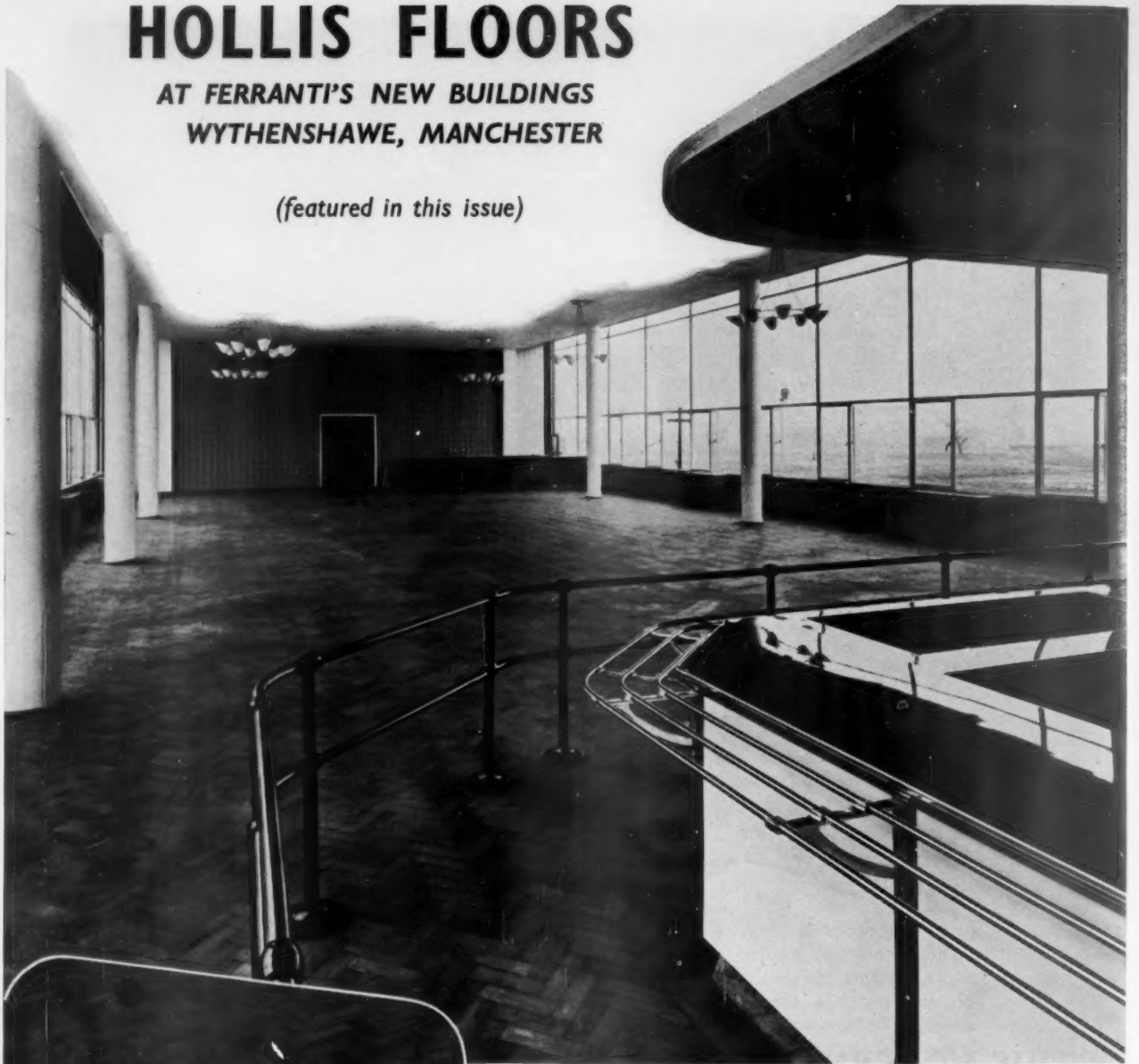
coming to the conclusion that its benefits outweigh any slight increase there may be in fuel cost, and are installing oil-fired space heating systems in private houses, office blocks, department stores, hotels and churches, as well as in schools.

If you would like further information about oil fuel for space heating or for domestic hot water boilers, please write to Shell-Mex and B.P. Ltd., Fuel Oil Dept. 9G, Shell-Mex House, Strand, London, W.C.2. A technical representative will be glad to visit you to answer your particular queries.

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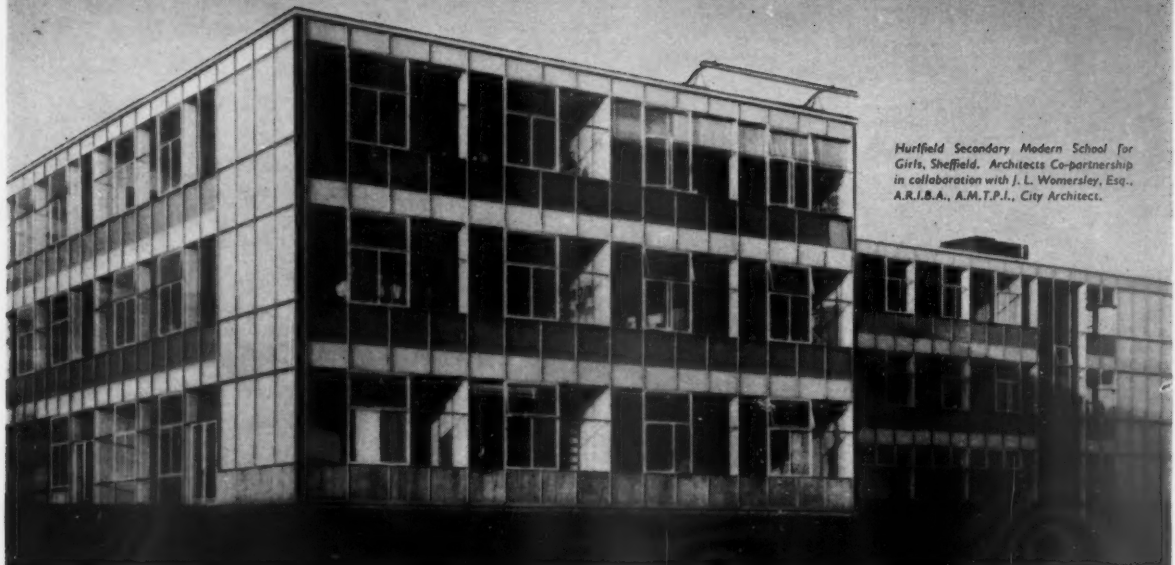
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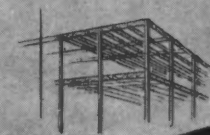
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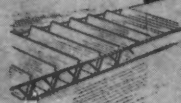


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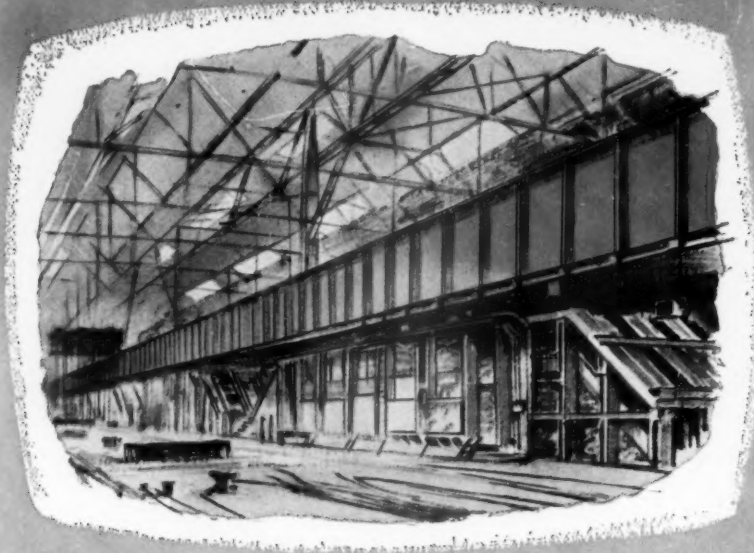
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B·C·S·A

MARGINALIA

Oxford

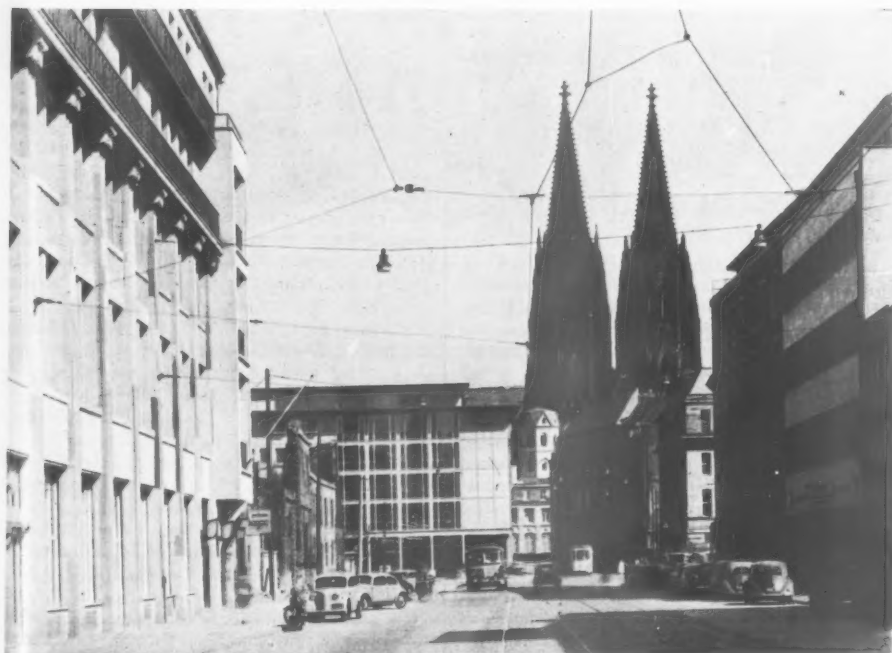
At a meeting of The British Association in Oxford in September last, the Warden of New College (Mr. A. H. Smith) read a paper on *The Town Planning of Oxford*. This has now been published as a pamphlet (Blackwell, 2s. 6d.). In his paper the Warden spoke at length of 'how much loss there has been to Oxford through the continued despoilment of its country setting,' and urged the establishment of an inviolable green belt, five miles wide, round the city. He also spoke seriously about the replanning of the interior of the city. 'I do not wish my university to be segregated or cloistered. Its scholars should feel as they have done in the past, that they are part of a city in which there is no stagnation but a lively activity. I would like to see the life of the city still continuing in close proximity to the University and its colleges, and I believe that there need be in this no loss of those quiet influences [which are so valuable]. We can guard them if we are careful in our planning and know what it is we want to do.'

The pamphlet shows a most enlightened and imaginative understanding of Oxford's planning problems. Since writing it the Warden has become Vice-Chancellor of the University. That there should be a Vice-Chancellor who

is even interested in planning, let alone one as well informed and understanding as the Warden, is a striking piece of good fortune at a time that is critical for Oxford's future.

Urbanism at Yale

The graduate programme in City Planning at Yale has already begun to leave behind it a trail of valuable papers—specialized studies of general aspects of town design, or detail considerations of particular localities—and has now produced its most important by-product so far: a collection of studies and projects which the director of the programme, Christopher Tunnard, brushes off as merely a sample. Even so, this small book covers such matters as notes on a town-planning exhibition for circulation in Virginia; a Fiske Kimball paper on Thomas Jefferson's views on urbanism; studies of industrial location and the function of two golden horses at the head of Arlington Bridge, Washington, D.C.; Huntingdon Brown on regionalism and zoning in Connecticut; the inevitable tape recording of the equally inevitable discussion on monumentality, enlivened in this case by the presence of Sir William Holford, and a shrewd question from another Briton, Colin Rowe; and an important study of the master-planning of the St. Lawrence Seaway project, a piece of regional redevelopment whose scope and consequences are still too little appreciated this side of the water. The subject matter is very varied, but the quality of the papers in *City Planning at Yale* is consistent, and if this is just a sample, and not a creaming, the Yale programme is clearly one of the most significant enterprises in this field of design education.



GERMAN REBUILDING: The exhibition of post-war German Architecture at the RIBA (until March 24) is, inevitably, largely concerned with the rebuilding of bombed areas, not only in terms of re-creating the capital equipment necessary for the maintenance of human activity, but also in terms of re-creating urban scenery to form a setting for that activity. The heavy lead of historical association carried by surviving monuments in the central areas of towns has called forth a variety of solutions in the outlining of aesthetic policy, but it has not prevented the bold employment in some cities, such as Cologne (above), of modern design idioms, which add life to the townscape scene by the stimulating contrast between old and new. The building is for the Cologne Chamber of Commerce, architect Karl Hell, and was published in the *AR* issue December 1953.

Old Elgin

Another useful local-architecture study, more or less comparable in scope with Miss Moody's *Silhouette of Malvern* (Marginalia, *AR*, October, 1953) is *Old Elgin*, an illustrated survey by Ronald Cant and Ian G. Lindsay, issued by the Elgin Society. Though it tends to value mere age above design, it is animated by a developed sense of *genius loci*: '... just because of its very excellence (the Cathedral) may be regarded as embodying nearly the entire claim of the city to architectural consideration, and it may be thought that "Old Elgin" will be adequately preserved if the cathedral and its immediate surroundings are preserved from desecration. In fact, as it is the purpose of this survey to show, the ancient character of Elgin is a much larger and more complex thing, derived from a whole series of features of which the cathedral is but one ...'

The study of the town then, quite naturally, starts with the ancient walls and gates, and the historical types of building plot—basic factors in the development of this sort of town—follows through house-building and industry to public edifices, then Georgian developments, and arrives at a detailed description of the Cathedral half way through the book. A closer study of other buildings then follows, but all particular matters have already been firmly fixed in the generalized context of the town before this is undertaken. Had this holistic approach been driven further in the purely visual field, the authors might have used less space in balancing out their own opinions about St. Giles' Kirk—a Neo-Grec rebuild by Alexander Simpson of the eighteen-twenties—and given it its due in the make-up of the town's character. The problem here is surely not one of the ethics and advantages of letting good Gothic alone, but of recognizing that the tidy-minded symmetry of Simpson's portico and the axial placing of the fountain in front of it give a stiffening of order to the characterful chaos of the High Street in a way that an informally shaped structure on the same island site never could.

Brixton School of Building

Within ten years of the establishment of technological training, under the Technical Instruction Act of 1889, the Technical Education Board of the LCC had reported that the workers in the building trade, the second largest body of skilled craftsmen in London were without provision for advanced training. At about the same time an abandoned group of buildings, once a swimming bath, later a polytechnic, became available in Lambeth, centrally placed for the area in which a great proportion of London's building trade operatives then lived, and the LCC, having negotiated a difficult and apparently precarious purchase, opened the first classes in building technology there in January, 1904.

Since then the Brixton School of Building, as it is now called, has proliferated and extended and made itself the main centre for technological training in the building crafts and structural sciences in the London area. In 1906 a school of architecture was added, directed and organized by Beresford Pite,



CHINESE EXHIBITION: During the summer months the Department of Chinese Antiquities of the British Museum assembled into a single exhibition a number of pottery objects belonging to the Han period; these were supplemented by rubbings from bricks and tombstones from Chinese Museums. The watch tower, above left, a few feet high in glazed pottery, and the ornamental brick, above right (thirty one inches high), were put into tombs to provide the dead with all that had surrounded them in life. In addition retinues, or rather images of them, took up residence with their masters. The Han dynasty, which lasted from 202 BC to AD 222, united China and greatly increased her wealth; during it the arts flourished, especially pottery and sculpture, and Buddhism was first introduced.

and is now an RIBA 'listed school,' while in the intervening years the school had pioneered courses in such subjects as Foremanship and reinforced concrete technology. As the provider of complete technological training, from junior school level upwards, it has contributed certificated, diplomated, and be-medalled technicians to many branches of the building industry, and during its wartime exile in Berkshire it bequeathed to the town of Bracknell some unexpected ornamental brickwork, garden sculpture, a barrel vault, and a saucer-dome in fibrous plaster. The war also saw the gutting of the great hall, a remarkable structure which had been the actual bath-house of the original buildings, but the original entrance block to Ferndale Road—a forceful study in Victorian polychromy and banded brickwork, had already disappeared in the thirties, replaced by a larger structure in the undistinguished School-Board-Queen-Anne manner then current.

The complete story of the School's progress and activity is to be found in the jubilee publication *The First Fifty Years*, which may be obtained from the School, price 2s. 6d.

CORRESPONDENCE

To the Editors,

THE ARCHITECTURAL REVIEW

SIRS,—In the December issue of the REVIEW you illustrate two textiles designed by Henry Moore and manufactured by David Whitehead Ltd.

One of them is severely criticized because of its complexity and because the colours are 'useful.'

At the same time you praise earlier designs produced by Whiteheads which use 'brilliant vermilion and green and black on a white ground.'

I feel that this criticism raises issues of policy which are important to industrial designers and in fact to architects.

The designs on white grounds, while very attractive were in fact very difficult to sell, whereas designs on coloured grounds using similar motifs sold well, in other words they were less 'useful.' If we are designing for use we must consider the needs of the user or our designs will remain attractive exhibition pieces. Art for art's sake is a dangerous and, in fact, impossible doctrine for the industrial designer.

Yours, etc.,

TOM MELLOR

(Design Consultant to David Whitehead Ltd.)
Lytham St. Annes.

[Mrs. Diana Rowntree, author of the article referred to, writes: Mr. Mellor raises the point, fundamental to all Industrial Designers, of the intrinsic conflict of their aims. They must perpetually reconcile the claims of function and appearance. This difficult task is further complicated by the most deceptive of all figures—sales statistics. These are particularly tricky in the Textile trade where Fashion is given its head and styles succeed each other with breath-taking speed. The actual sales of a design at a particular time are not necessarily a guide to the potential sale of that design at the psychological moment. Besides, sales also depend upon a factor right outside the designer's influence—salesmanship.]

I am not clear what Mr. Mellor means by policy. If he means the extent to which the designer should consider his client's sales and the extent to which he should please himself, that is unfortunately a problem that arises afresh with every design. Surely genius lies for him in discovering how to please both at once.

My own policy as a critic is to uphold the highest standards of beauty, and to clarify issues.

I assume that Mr. Mellor read my review on the Henry Moore textiles with close attention. So he will

know that I think there are three ways of designing a colour scheme in relation to grime. First to choose colours as near as possible to the colours of dirt. Secondly to introduce the principles of camouflage, and use strong contrasts. Thirdly to use the cleanest looking colours you can think of, and pay to have them cleaned. My personal prejudices are in favour of the third course. To the designer the second way calls for the greatest skill, but there is no limit to the beautiful fabrics that could be conceived under this heading.]

Intelligence

Three new members have been appointed to the Committee which advises the Minister of Housing & Local Government on matters concerning buildings of special architectural and historic interest. Professor Sir William Holford is chairman of the Committee and the new members are Lord Euston, J. D. K. Lloyd and W. A. Eden.

Professor Gordon Russell, C.B.E., M.C., R.D.I., an original member of the Council of Industrial Design, and its Director since 1947, received a knighthood in the New Year's Honours List.

British experts have been selected to plan the development of Baghdad. Anthony Minoprio, a partner of Minoprio and Spencely and P. W. Macfarlane, was approached when lecturing for the British Council in Iraq in 1953. The firm is to provide a master plan for the whole city and four larger-scale plans of the oldest and most densely built-up areas, including one of the central area.

ACKNOWLEDGMENTS

COVER, Galwey, Arphot. MARGINALIA, page 151: British Museum. FRONTIS, Kenneth Browne. OFFICES AT POOLE, pages 158-167: Nos. 1-8, 10-18 and 15-19; Galwey, Arphot: Nos. 9 and 14; John Harris. COLEMAN OF SINGAPORE, pages 168-179: Nos. 1 and 20, Colonial Office Library; Nos. 9, 12, 16, 17, Dr. C. A. Gibson-Hill; Nos. 3, 4, 5, 10, 11, 13, 18, 24, Marjorie Doggett; Nos. Frontis, 14, 15, 27, T. H. H. Hancock; No. 19, Singapore Public Relations Office. HOTEL AT LAGOS, pages 181-186: Nos. 2 and 10, Sam Lambert; Nos. 1, 3, 4, 5, 6, 7, 8, 9, A. C. P. CLOSURE, pages 187-190: Nos. 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, I. de Wolfe, Arphot; No. 5, Fox Photos Ltd. CURRENT ARCHITECTURE, pages 191-194: Laboratories at Wythenshawe; Elsam, Mann & Cooper. School at Enfield, John R. Pantlin. Police Station at Oxhey, John R. Pantlin. MISCELLANY, pages 195-210: Mineral Workings, Nos. 2, 3, Sylvia Crowe; No. 4, McCallum, Arphot; Nos. 5, 7, 8, 9, K. G. Browne, Arphot. Exhibitions: Nos. 1, 3, R. B. Fleming & Co., by permission of The Arts Council of Great Britain; No. 2, Tate Gallery; No. 4, W. Churcher; No. 5, Deste; No. 6, John Underwood. Lettering, Galwey, Arphot. Sculpture, No. 1, Rudolph Burekhardt; No. 3, Nederlandse Projectie Centrale. Outrage, No. 2, Ian Nairn. SKILL, pages 205-220: Furniture Review, Nos. 1, 2, 3, 9, 10, 21, 27, 29, 31, C.O.I.D.; No. 4, Parker-Knoll Ltd.; No. 5, Miles & Kaye Ltd.; Nos. 7, 8, 14, Mann Bros.; Nos. 11, 12, H. Morris & Co.; No. 13, E. Atkins Ltd.; No. 15, Caradoc Williams; Nos. 16, 17, 26, Heal and Sons; No. 18, Gordon Russell Ltd.; No. 22, Luke Kynaston; Nos. 24, 28, Loughboro' Cabinet Manufacturing Co.; No. 25, L.M. Furniture Ltd.; No. 32, Kandya Ltd.

Offices at Poole

The blocks for the colour half-tones on pages 161 and 164 were made available by the courtesy of Messrs. Plyglass Ltd.



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THE ARCHITECTURAL REVIEW

Volume 117 Number 699 March 1955



This month's cover salutes an important step towards the recovery and re-creation of the tradition of good public lettering in general, and good public-house lettering in particular. The lettering on the Champion public house, which was described in last month's ARCHITECTURAL REVIEW, is not merely revived Victorian, but an attempt to create a live sign-writing style from first principles, having regard to the character and function of the place where it is displayed. The methods by which these principles and letter-forms were arrived at, and the relationship between designer and craftsman which was necessary for their realization, are described in a note on pp. 200-202.

151 Marginalia

152 Correspondence

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155 Walter Gropius by E. Maxwell Fry

The work and personality of Walter Gropius are among the most distinguished features of the Modern Movement in architecture, and on the occasion of the publication of Professor Gledhill's new study of Gropius, *Work and Teamwork*, Maxwell Fry has set down his impressions of the great pioneer as a person, as a collaborator, and as an influence on the machine-age architecture of England and the world at large. He draws attention to the affection and esteem which Gropius has always attracted, his seriousness, his devotion to logical analysis, and his sustained faith in the idea of liberation through the machine. The last is perhaps his most remarkable intellectual achievement, for in spite of the deadening influence which machine repetition can have on some creative temperaments, Gropius has shown, with his developed and humane concept of teamwork, how the creative artist can be built into the design process. To do this he invented the Bauhaus, and the reverberations of that pioneering gesture can still be felt today.

for the need of an all-embracing union of the arts and of a close grip on the machine in all its variety is with us still and the influence of the Bauhaus experiment on the design of everyday objects is still visible in the shops.

158 Offices at Poole: Architects, Farmer and Dark

168 Coleman of Singapore by T. H. H.

Hancock Unlike some Colonial territories which were opened up in the period immediately following the Napoleonic Wars, Singapore's primary stock of building types, and of surviving buildings, were not rudely utilitarian structures erected by military engineers, but works of some distinction by George Drumgoole Coleman, who came to the Colony within the lifetime of its founder, Sir Stamford Raffles, and shaped the course of its architectural and urbanistic development for fifteen vital years. Little is known of Coleman's early history, and he reached Singapore by way of India and the Dutch East Indies, but having arrived he rapidly established himself in local favour, designing a residency for Sir Stamford Raffles, and becoming involved shortly afterwards in the formulation of the basic town-planning regulations which have governed the street plan of the Colony ever since. Coleman left Singapore for a short time when Raffles left in 1823, but he returned and remained in his colony, except for a trip to Britain to mend his health and to marry, until his death in 1844. He contributed to the architectural heritage of the city public and private buildings and a late-Palladian repertoire of architectural usages, developed in accordance with climatic needs in the form of deep porticoes and colonnades to give shade from the sun. Mr Hancock lists his buildings and chronicles his manifold activities, which included the founding of a newspaper and the opening up of the interior by road-building and surveying, and regrets that so little is known of his personality, for the ability with which he grasped the opportunities offered by the undeveloped city-site must be as unique among English architects as his distinction of having designed a church for the Armenian rite.

180 Preview: Hotel at Lagos: Architects Co-Partnership

187 Closure by Gordon Cullen

Unlike enclosure, which creates independent and self-contained interior spaces, the function of closure is to punctuate and measure-off continuous linear experiences, such as streets, into humanly digestible units. A building which provides closure does no

stop a vista, it marks a step along it, and suggests further extensions of the space beyond. Mr. Cullen illustrates the use and function of closure with examples taken from various English towns, including a progression through the central complex of Blandford Forum, and notes how the occurrence of closure helps to provide a human scale in pedestrian circulation, and a sense of identification and location in city centres. Further he notes how this device can be used to enhance the visual importance of certain buildings, for any structure so placed to create a closure must automatically occupy a prominent site, and, probably a key position in the town's circulation network as well.

191 Current Architecture

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209 Designers in the Making by Diana Rowntree

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The Author T. H. H. Hancock, senior architect in the Public Works department, Singapore. Born in Essex, 1913; qualified at the Bartlett School and worked in private offices before the war. Subsequently with the Air Ministry and Federal Town Planner for the Malayan Federation. Has just completed renovation of Coleman's Court House (illustrated on page 176) for use as government offices, rescuing it from demolition.

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Collaboration between architect and artist is much discussed but rarely practised—possibly because each is jealous of his own preserve, and the effect of the other's work upon it. The pebble mural on a new office-block at Poole, Dorset, which is seen opposite  is in a drawing by Kenneth Browne is important because it offers a way out of this dilemma, the architects having provided the wall-space and the materials—pebbles and fossils from local sources, and lengths of aluminium extrusions manufactured by the client—and having given the main lines of the composition as they related to the building, then left the artists—in this case a group from Bournemouth school of art—a free hand to develop the rest of the design within these clearly defined limits. Further illustrations of the finished composition are seen on page 164.

E. Maxwell Fry

WALTER GROPIUS*

I first came in contact with Walter Gropius in 1933, when I helped in some small capacity to organize an exhibition of his work through the R.I.B.A. He must have come over to England at that time, for I remember a meeting in the School of Hygiene & Tropical Medicine arranged by the Design & Industries Association, where Gropius introduced us to our more serious tasks in an atmosphere of tense excitement and breathless enthusiasm.

I can remember exactly the overcrowded room and he standing among us, speaking with the utmost clarity in broken English of how we could mend the disunity of our machine civilization, and what moved us was the mixture of humility and authority with which he addressed us. It gave us in the moment an unexpected accession of strength and assurance. The theme was already familiar, but not the depth of purpose with which he invested it. The next year Gropius left Germany and through the mediation of J. C. Pritchard, his host during his stay in England, became my partner.

Looking back on that period of partnership with Gropius I have the sense of not properly appreciating my good fortune for two reasons: first, because England lay outside the currents of European thought and entered when the main flood was subsiding and retreating before totalitarianism; and, second, because there is in the English character a vein of anarchism, amounting at times to pig-headedness, that rejects the logical approach and the commonly shared view in favour of going through the independent experience come what may.

What saved me was Gropius's power of drawing affection and respect from those with whom he came in contact. His buildings I already respected, but could not love as I did

* *Walter Gropius, Work and Teamwork*, a biography by Siegfried Giedeon, was published in December by the Architectural Press, price 42s.

Mies van der Rohe's Tugendhat Haus, but the over-seriousness that somewhat diminished the pleasure in his buildings is an entirely lovable attribute in the man. You cannot be patient and understanding without broad sympathy.

It was some years later, in 1944 to be exact, that Jane Drew and I visited the Gropiuses at Concord and during an evening of great talk Gropius picked on a phrase from our *Architecture for Children* book which had just been published, in which we had suggested that we would perhaps be better off without machines but, having them, had better make the best of them. His distress at the quantity of doubt expressed showed clearly how devoted he was to the thesis of liberation through the machine, and, vice versa, of a life interpenetrated by the machine idea.

I am not suggesting that the machine limits the range of his ideas, for one has only to recall the list of his collaborators at Dessau, and especially Paul Klee, to recognize that this was not so, but that the full force of his intelligence was directed toward it, continuously and unremittingly, and over the whole field of its operation, and even, as in his total theatre, beyond it, is the impression that talk gave me again.

Gropius alone recognized the weight and importance of it, as proof of which is the patience with which he built up the structure of the Bauhaus, elaborating a method by means of which, not from one but from several sides at once, the machine idea could be illuminated by a variety of intelligences and feelings; and from being a single idea became multiform, germinating and expanding.

To do this meant deferring the practice of architecture itself and acting as a god behind the machine; working, as indeed he early trained himself to do, through others.

A capacity to stand by the logic of a set of facts or deductions Gropius shares with Le Corbusier but saying so gives rise to a comparison that leaves Gropius more intellectually but less intuitively in command of the situation because his ends are more nearly in view, while Corbusier, who invented the slogan of the house being a machine to live in, gave the machine a rough time from the beginning and under certain circumstances could forget it entirely, his ends tending towards pure art and philosophy like the third great exponent Mies van der Rohe, whose manipulation of steel structure for his particular and remote purposes has set a schoolman's polemic in motion.

But what concerns us here is the truth of his main idea that is based on the manifold dominance of the machine in our civilization and of the need to unite it with art and make it serve society, and it is his method that so strongly sets him apart from his contemporaries who act like artists and architects, that is, without the compelling faith in an idea that to bring to any fruition requires more of patience and detail, a much closer penetration of the subject, a greater liking and understanding of industrial processes and industrialists' attitude to work than any of them possess or feel the need for.

There is a demon in the machine, a tendency towards evil and death that has constantly to be dealt with. The end of the machine is to reproduce endlessly. The rhythm of the machine is repetitive, a dead-beat, stupid, mindless. We invent the machine to reproduce, and at once we have to think of how and where to stop it, or we are lost. Because its end is to repeat, it is different from a tool because this repetitive purpose is dominant and must be satisfied. What is capable of being most often repeated is what best suits the machine, which explains why mass-produced cars succeed better than mass-produced houses, though even here the variability of human fancy intervenes in the logical process of reducing a world demand for cars to half a dozen types.

The search which Gropius conducts is for building norms capable of mass-reproduction

that can satisfy human variability and produce successive unities in terms of art. This is the germ of the Panel House system, the most important of all contributions in this field.

The pressure of the machine towards dead-beat uniformity is constant and the struggle to combat it by humanizing its dead rhythm reaches its height in the modern office building, where the human element is already reduced by multiplication of undominating digits to a point where it is difficult to give it significant expression, and where under pressure of minutely calculated finance machine-building smooths away every feature on the gradually ossifying facades.

For proof, look at Corbusier's first UN building sketches which are alive, varied and significant where the final building is dead. But even Corbusier, both in the UN building and at Chandigarh, is hard pressed to give adequate expression to a big box of clerks, because we have to remember that in the organization of business and government the machine idea is, alas, at work reducing the individual to a cog in a machine, levelling, smoothing out, liquidating eccentricity, de-personalizing.

I am tempted to think that it is better to accept the truth presented by the problem so that we may see what we are doing with our civilization, and stop. But I know that human life is made possible only by identification and differentiation and that we cannot for one moment let up on the struggle to assert human values in place of materialism. Never before has the co-operation of artists and architects been more necessary. Men like Eduardo Paolozzi should be in on the sketch stage of our important office buildings, even if they come, as a priest went to a battle, to save our consciences.

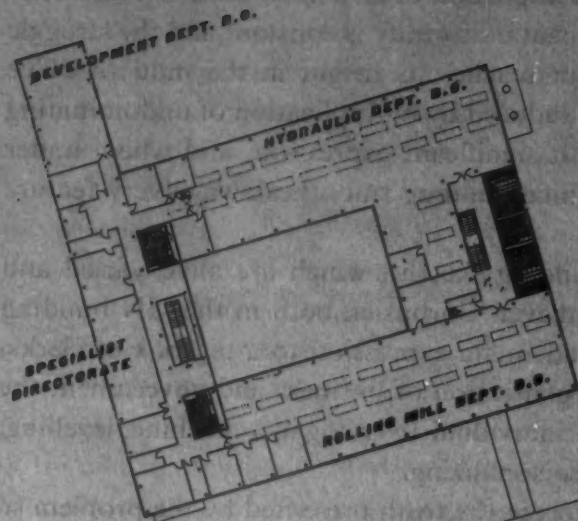
But think of the role played by Burle-Marx and his fellow artists in Brazilian building, which could not reach its high standards without their various but complementary contributions, and it is not only the actual contributions they make but the enrichment of idea and purpose they bring to the architects they so happily work with.

This task that has occupied Gropius's long and splendid working life is one of coming to terms with the dominant and ever dangerous element of our civilization, by exercising its mechanical virtues to the point where they best serve us, extracting from them the capacities for expression that inhere, but leading them thereafter in the direction of quite other and essentially opposite virtues, so that by contrast and variety the final expression is human, various, differentiated and accessible to sympathy and love.

To do this he invented the Bauhaus, because the architect can by no means do it alone and nothing more stupid can be conceived than the idea so prevalent in this country of architects working in isolation. There has even been suggested an architects' union to ensure a more complete isolation than ever, when what is wanted is an unrestrictive union of all arts, unless, that is, architecture is to be a mistress in the lesser term of the word!

We need a Bauhaus still, or a closer grip on the idea that the machine itself is multiform and can be met only by dealing with it in all its variety, leading it always towards its greatest task, which is the re-creation of an acceptable background of town living.

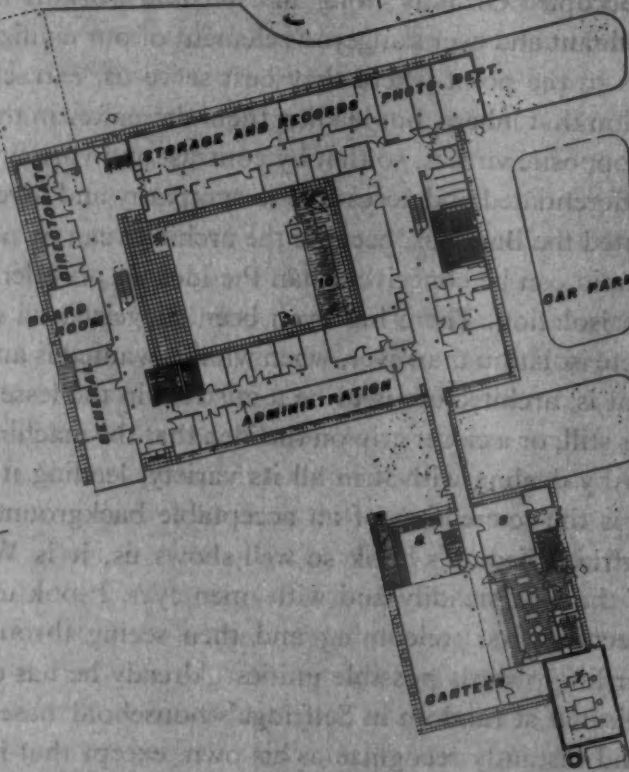
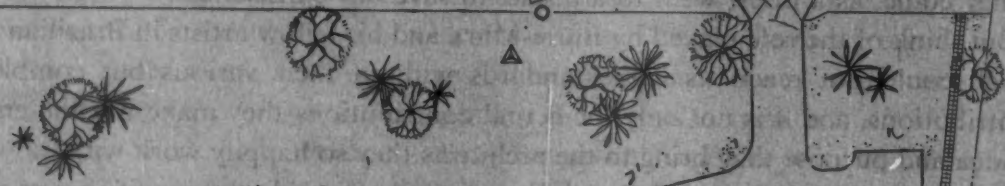
In the end, as Siegfried Giedion's book so well shows us, it is Walter Gropius who sees the grandeur of the task steadily and with open eyes. I look upon him as a grand Beethoven of architecture, first welcoming and then seeing through and beyond the manifestations of our life towards possible unities. Already he has done much. I could arrange a tribute collected at random in Selfridge's household basement that he would accept, approve of and instantly recognize as his own, except that he would say that is Mies' old chair, or Marcel's lamp or somebody else's stuff, and it is that attitude towards life that makes him loved, respected and our master.



first floor

scale: 1/64" = 1 ft.

WALLISBORO ROAD



ground floor

- key
- 1. check point.
 - 2. garage.
 - 3. cycles.
 - 4. motor cycles.
 - 5. switch room.
 - 6. stores.
 - 7. boiler house.
 - 8. directors' dining room.
 - 9. recreation room.
 - 10. pool.

OFFICES AT POOLE

OFFICES AT POOLE

ARCHITECTS | FARMER AND DARK

1, looking east to the link between offices and canteen.



The site of these offices for the Loewy Engineering Company is twenty acres of heathland fronting Wallisdown Road, north of Poole, Dorset, near the Ringwood road. The open site was chosen to give room for planning and to provide scope for proper grouping of buildings and landscaping—by Brenda Colvin—in pleasant surroundings. The scheme consists of an office building to house technical drawing offices and administrative

departments and a factory for the manufacture and assembly of the machines designed. The office building and canteen, described here, are complete, and work has started on the first section of the factory. All are designed for extension.

The courtyard form evolved directly from the planning requirements—the provision of two main drawing offices for hydraulics and rolling mills which were required to

[Continued on page 165]



2

2, underneath the west staircase : the ammonite in the foreground was found on the site and set into the floor.
3, the administration wing from the south-east. 4-6, three views in twilight, dusk and darkness showing the extreme transparency and the effect of the columns rising through the building obtained by oversetting the upper floor.
4, looking west to the car port below the development drawing office. 5, the drawing office from the north-west, and 6, the directorate side from the south-west.



4



5



3

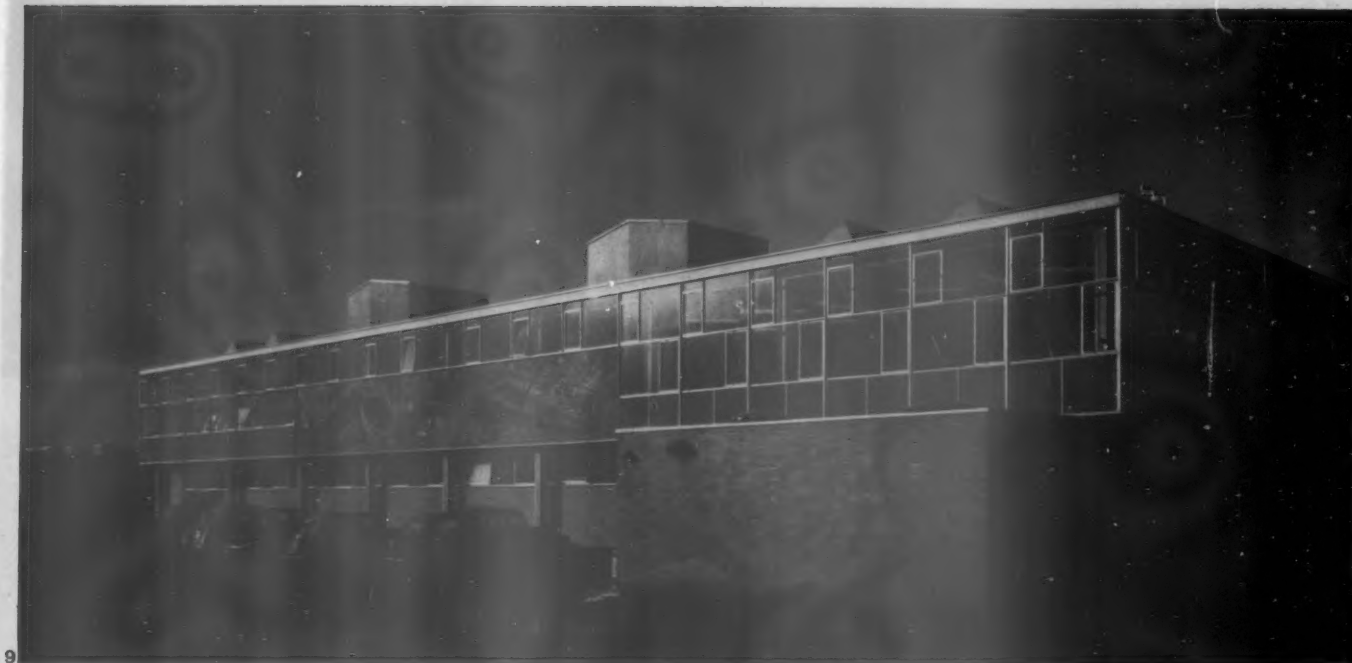


6



OFFICES AT POOLE

Opposite, 7, above, the mural on the east front, designed to a theme provided by the architects by students from the Bournemouth Art School. 8, below, a close view showing the pebbles and extruded aluminium sections. 9, the east side, with the photographic department in the foreground. 10, looking into the courtyard from the west, next to the main staircase.



11, one of the panels of patent glazing on the first floor beneath the windows. 12, looking up the main staircase. 13, a similar view showing the courtyard. 14, the framework shown during construction.

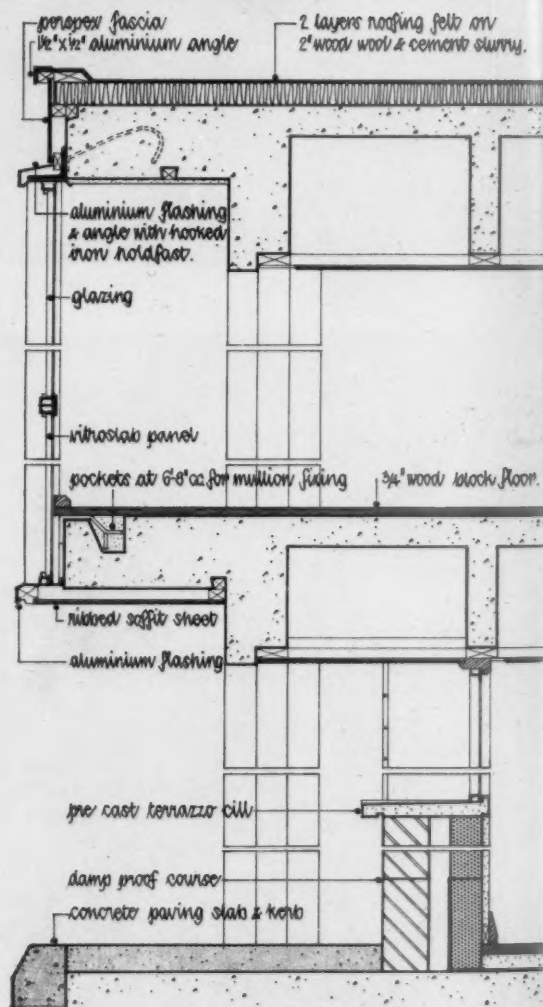
OFFICES AT POOLE



11



12



section through north elevation

scale: 3/4 in. = 1 ft.



13

be independent of each other yet on the same floor, and with common requirements of staff amenities at one end and technical directorate at the other. These were placed on the upper floor for maximum daylight conditions and to gain clear spans whilst the general directorate, administrative departments and printing and record facilities are below them.

The internal walls were required to be in moveable sections of standard size where possible so as to allow for rearrangement of office space at will (the internal plan has in fact been altered three times during the course of the building period). This called for constant floor to ceiling height and the placing of partitions off the line of columns; it also led to the design of all units on a common module, the dimensions chosen being 40 in. on plan and increments of 8 in. in height. The framework is of site precast reinforced concrete, columns and beams consisting of standardized sections cast in batches adjacent to their final position, erected in place and bonded with poured concrete cores. This system reduces the amount of shuttering required and increases speed in that the precast portions of each member are strong enough to carry a load immediately they are erected and therefore to allow construction to proceed while the *in situ* portion is still setting. Columns consist of two 9 in. by 3 in. precast leaves with a 9 in. by 3 in. *in situ* core. These carry primary beams, at 13 ft. 4 in. centres, of which the lower portions are precast; precast secondary beams 10 in. by 3 in. are rebated into primary beams to provide a constant soffit and have standard holes in their depth to take services. Floors and roofs are of 3 in. *in situ* concrete with woodwool insulation to roofs. Walls are non-load-bearing throughout, with brickwork used only for toughness where adjacent to roads at ground level, in the kitchens and boiler-house and for

[Continued on page 166]



15

Continued from page 1651

carrying basins and other fittings in fixed elements of the plan such as lavatories and print rooms. Window walls are framed in steel-cored polished aluminium mullions, the lower dado sections consisting of coloured glass panels backed with insulation; the fascia is of white perspex. Aluminium venetian blinds are provided on all south and west windows.

The internal partition units are hardboard facing on a hollow core and are held top and bottom by small fillet moulds. They are designed with a four-way joint and flush pine cover strips and are finished with clear emulsion glaze. Ceilings are of perforated acoustic tiles made up in panels, and screwed to beam soffits. The recessed strips in these panels accommodate head fixing for partitions. Partitions run to ceiling height in all cases and borrowed light to internal corridors is obtained by fully glazed doors. Floors are generally of teak block with jointless plastic flooring in permanent corridor and storage areas and variegated random marble paving in the main entrance hall. Staircases are of reinforced concrete with teak treads inlaid with red rubber.

Heating, by oil-fired boilers, consists of a combined system of convected warmed air and hot-water radiators. The heating system is divided into several circuits all independently regulated by thermostatically-controlled valves, while the boilers are also automatically controlled by means of photoelectric cells regulating the flow of oil fuel to the burners. In the drawing offices



16



17

fluorescent lighting fittings are arranged on the basis of one 80-watt tube for every 35 sq. ft. Simple tungsten fittings are used generally in administration rooms and corridors, a design evolved by the Ministry of Education and the Building Research Station for use in schools.*

*Illustrated in AR July, 1953, page 59.

15, looking down the main (west) staircase. 16, the view from the vestibule through the car port. 17, looking down the corridor to the main staircase—the reverse of 15—and 18, the corridor which leads to the canteen, looking back towards the office block. 19, the hydraulic department drawing office, looking east.



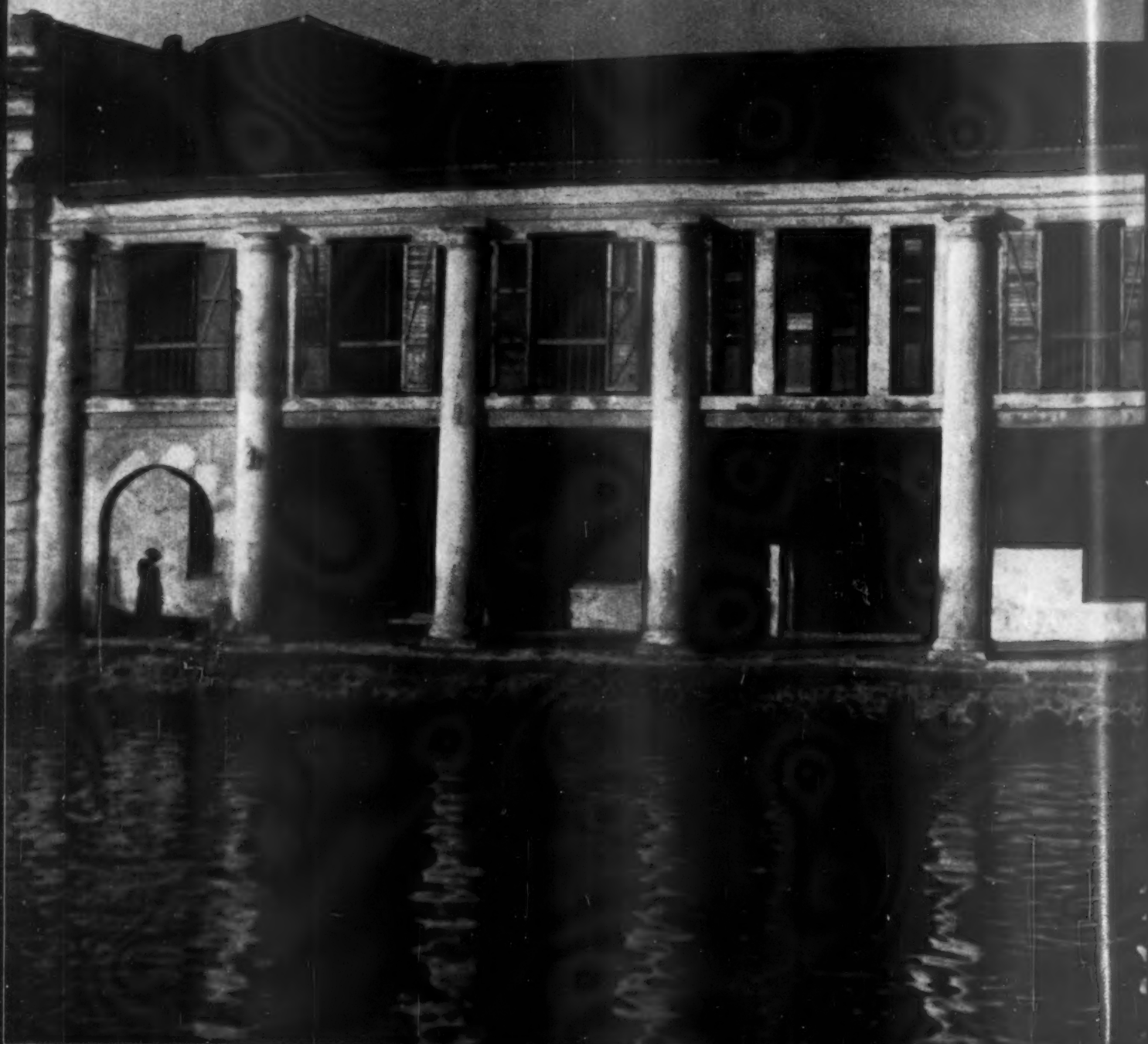
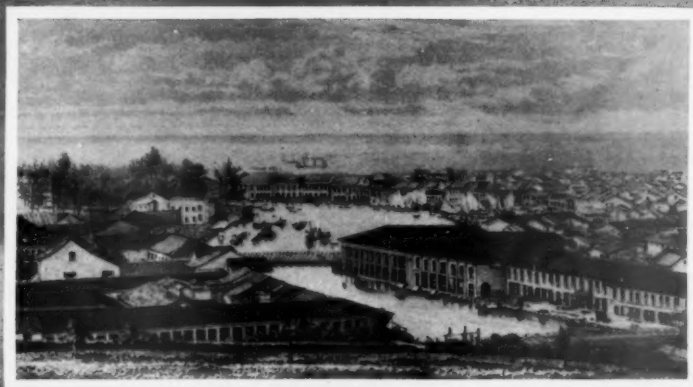
18

OFFICES AT POOLE



19

SINGAPORE



COLEMAN OF SINGAPORE

T. H. H. Hancock

Like many other British Colonies, Singapore has an excellent heritage of late-Georgian buildings erected during the period of its establishment. George Coleman, who worked with Sir Stamford Raffles, not only laid out the street grid and designed the public buildings—he can be credited with almost all the buildings shown in the lithograph above—but also gave a graceful turn to humbler structures. The warehouse, opposite, is an example; although not to his direct design, it was an extension which duplicated the adjoining Coleman building, seen in the inset, but now destroyed.

During the period of colonial expansion after the Napoleonic wars British public buildings in the tropics were invariably built by military engineers with the aid of military building manuals. These buildings were usually of the simplest kind, and often coarse and crude. Singapore is an exception. The settlement had been founded by Sir Stamford Raffles in 1819. Seven years later—seven years during which the military had built inadequately what was necessary—a trained architect arrived who was to be the surveyor, planner and architect of Singapore for about fifteen crucial years.

George Drumgoole Coleman was born at Drogheda, Co. Louth in Ireland in 1795. His mother's family, the Drumgooles, were well known County Louth merchants, and his father was also a merchant. It is not known how the son was educated. His name does not appear in the registers of the Dublin Society nor of the Royal Academy schools in London. Nevertheless he must have received a good architectural training. He proved himself familiar with the classical standards and details of Georgian architecture in Britain, and may have travelled on the Continent too.

In 1815 he left Europe for Calcutta.¹ He had, if we can trust the Court despatches or minutes of the East India Company, no permission to go to India. In spite of this, he began at once to practise as an architect at Fort William and in the Calcutta district.² He designed

and built many private houses for merchants, and in 1818 gained the patronage of John Palmer, one of the most influential and famous of them.³ One year later Palmer received a letter from van Braam, who represented the interests of the Dutch Java Government in India after the restoration of the Dutch colonies (occupied by the British during the Napoleonic wars) asking him to obtain in Calcutta plans for a cathedral and a Scotch Kirk to be built at Batavia. In July Palmer answered that plans were in preparation, but added that he did not think much of them.⁴ He then referred to designs made by Coleman and expressed his belief that the Governor General Baron van der Capellen would like them better. In December, 1819, the plans were despatched, and in his covering letter Palmer says:⁵

'I also send you a much more beautiful plan of a church designed by an ingenious young artist here, who would most gladly proceed on your encouragement to Batavia, in order to construct the church if you preferred his design to either of the other plans. Indeed, if you could hold out any encouragement to him as a *Builder*, I would send

¹ John Palmer (1767-1836) was the second son of Major (later General) William Palmer, confidential secretary to Warren Hastings. He was the friend and confidant of almost everyone holding high office in the East from the Governor General down. He often acted as a 'go between' on behalf of his Government friends in the Eastern Settlements and officials in the Supreme Government. His agency house, Palmer and Co., which occupied a unique position in India, extended its operations to Penang, Bencoolen, Pegu, Canton and later to Java and Singapore.

² Bodleian Library. The Private Letter Books of John Palmer. Mss. Eng. Lett. c. 88, f. 97.

³ Bodleian Library. The Private Letter Books of John Palmer. Mss. Eng. Lett. c. 89, f. 42. Letter dated December 5, 1819, from Calcutta.

him down: for the field here is fully occupied by persons who have greater resources and protection: Whether you employ him or not, or adopt his design, perhaps you will authorise me to make him a present for this beautiful specimen of his talent, and the labour he has bestowed upon it. *His name is Coleman* and he has skill in the construction of vapour baths, one of which embraces various modes of bathing, he has built for me these three years past and which answers famously.

'The enclosed receipt will obtain you the plans of the Churches. St. John's and St. Andrew's are together: The *Gothic* structure separately.'

It is interesting to note here that these designs by Coleman were in the Gothic style, a style not yet used often for new churches at the time, and one never again used by Coleman for anything. Coleman's designs were accepted, and he sailed for Java a passenger in John Palmer's own ship, the 'Baroness van der Cappellen' in March, 1820. He narrowly escaped shipwreck in the Indian Ocean. The 'Baroness van der Cappellen' was almost completely dismasted, and lost her sails, boats and anchors. The return of the ship early in April, 1820, to the Hooghly, brought Coleman back to Calcutta, but by late May he was again bound for Java in the refitted ship.⁶

Unfortunately Coleman's design was in the end not carried out, for van Braam died before Coleman's arrival in Batavia. In spite of this Coleman remained for nearly two years in Java, surveyed large sugar plantations in the interior, designed private buildings and sugar mills and erected machinery for the milling of sugar. During this period he must

⁶ Bodleian Library, *ibid.* f. 277-280. Letter dated April 21, 1820.

also have become familiar with the charming old buildings erected by the Dutch settlers in the seventeenth and eighteenth centuries, and the Dutch Government buildings in Batavia, the capital of the Dutch East Indies.

It is not known what reasons determined Coleman to obtain an introduction to Sir Stamford Raffles and leave Batavia for Singapore. He travelled in June, 1822, and had to wait four months for Raffles's return from Bencoolen in Sumatra. During these months he designed—'on spec.' it seems—a Residency House. When Raffles saw this he expressed great satisfaction and at once asked Coleman to design a garrison church. Coleman received fees for both designs, and Raffles built the Residency in November, 1822, at the top of Bukit Larangan, the 'Forbidden Hill,' now named Fort Canning.⁷ The building, completed by January, 1823, was built in timber with a thatched roof. These were not necessarily the materials envisaged by the architect.⁸ The Residency was described as a neat bungalow, 100 feet in frontage, and 50 feet deep, with rough plank walls, Venetian windows and an attap roof (nipah palm thatch). Coleman's plan comprised two parallel halls with front and back verandahs, terminated by two square

⁷ Bukit Larangan or the 'Forbidden Hill' was so named as the old Rajahs of Singapore had built a palace on the Hill to which various dates in the early fifteenth century have been ascribed. The palace disappeared, but the tombs of the old Javanese Kings and Rajahs of Singapura were there and the Hill was considered sacred.

⁸ In his *Hikayat 'Abdu'llah bin 'Abdu' Kadir*, an autobiography by Munshi Abdullah, Raffles's professional teacher in the Malay language, he mentions in the year 1822: 'The houses were all attap (i.e., thatch) except one built of brick by Mr. Coleman. There was not a single house on the other side of the river. It was a Mangrove Swamp, and all lived on the Plain side of the River.'

¹ Commonwealth Relations Office, London. Board Collection No. 58495, pp. 160-165. Letter dd. 23.1.1833 from G. D. Coleman to S. G. Bonham, Resident Councillor, Singapore.

² As late as 1827 Coleman had no licence to settle in Singapore. There were several other Europeans in the same position. Coleman was permitted to remain, and in June, 1827, became an uncovenanted servant of the East India Company.

wings to provide sleeping apartments. It became Government House and, more substantially reconstructed, stood until 1859.⁹

The design for a garrison church, for which a rough estimate was submitted on November 7, 1822, was approved shortly after. A site had been reserved, but ten more years were to pass before Coleman was to build this first church for the European community in Singapore. Raffles called on Lieutenant Philip Jackson of the Bengal Artillery, the Executive Engineer, for detailed estimates, but nothing further was done.¹⁰

Between October 17, 1822, and February 28, 1823, the first Town Planning Ordinances for Singapore were drafted by Raffles and presented to the Land Allotment Committee. It is very likely that Coleman's advice was sought on many of the matters contained in them. The extent of the town was laid down, the reservation of ground for Government purposes, including defence, the site of the European town and the principal mercantile establishments. Coleman recommended the filling up of land on the swampy south side of the river, and this land was indeed later developed by him as the commercial centre of the town.

Detailed instructions were given with the object of securing an orderly and well laid-out development, with 'campongs' reserved for the various nationalities: Chinese, the Bugis settlers, Arabs, Malays and Indians. On November 4, 1822, the Committee were instructed to trace the different streets and highways, which should as far as practicable run at right angles. The breadth of the streets was left undetermined. Evidently the point had been discussed, but there were differences of opinion. Raffles also directed a classification to be made of the streets under the heads of first, second and third class, determining the least space along the street which should be occupied by each house and consequently fixing the exact number of houses which each street should contain. Different artisans, such as blacksmiths, carpenters and shipwrights, were to live in different areas. The width of the so-called shop houses was determined at 20 feet by the availability of felled timber (jungle roller beams and joists) from the island. Even today shop house frontages are still sub-divided into 20-foot bays, for individual shops.

At a later period Coleman made his streets one chain in width and within the limits laid down by Raffles, three miles along the coast and inland for a distance varying from half a mile to a mile; the roads and streets then laid down, and eventually constructed by Coleman, are the streets of today. North and South Bridge Roads are the main thoroughfares through the town from north to south. They were made in 1833-35. In 1840 New Bridge Road, leading to the bridge across the Singapore River and also designed by Coleman, was extended towards the southern outskirts. The bridge was a brick structure of nine arches.¹¹

⁹ It is a matter of tradition that Lord Elgin walked up and down all night on the long front verandah of the centre building, and decided in the morning to divert the troops going to China, and to send them to Calcutta on the rumour of the mutiny having broken out in India in 1857.

¹⁰ In the estimates the body of the Church was to be kept distinct from the steeple, so 'as to admit of the subsequent elevation of a steeple or not, as circumstances may require.' When commissioned in 1825 to build the first Church of St. Andrew, Coleman completed the building, a classic design, without a tower and spire. They were subsequently added.

¹¹ Coleman in 1835 also built an iron suspension bridge across the Kallang river.

Raffles's instructions contain also details about the frontages for all brick or tiled houses. Each house should have a verandah of a certain depth open at all times as a continued and covered passage on each side of the street sheltered from sun and rain. These verandahs in the shopping districts of the town persist today.

Raffles departed from Singapore for the last time on June 9, 1823, and Coleman went back to Java at about the same time. He remained for nearly two and a half years, busy with an extensive agricultural speculation. He constructed large embankments and reservoirs for the irrigation of ricefields, surveyed sugar plantations in the interior and developed schemes for the buildings on sugar estates in 1824 and 1825. Then, in 1825, war began between the Dutch and the native Javanese and Coleman returned to Singapore.

Meanwhile, at Singapore a considerable impetus and encouragement to the permanent development of the town had been given. John Crawford, Raffles's successor, concluded a treaty with the Sultan and Temenggong of Singapore in August, 1824. It was ratified by the East India Company in 1825, and ceded the island in full sovereignty to the Company, its heirs and successors for ever. As soon as the treaty was ratified, European merchants started to erect substantial houses, offices and warehouses on grants of land issued by the Government on long leases. Coleman's return was thus opportune.

His first important commission was a large Palladian house for David Skene Napier,¹² to whom land had been granted on January 26, 1826. The house is only known in a lithograph in Lady Raffles's *Life of Sir Stamford Raffles* (London, 1830). This commission was followed by that for a palatial brick residence, 20 and 21, for a Java merchant John Argyle Maxwell.¹³ It was built in 1826-27 and before completion leased by Maxwell to the Government. It was used as a Court House and Recorder's Office and purchased in 1841. It survives to this day, though much altered and enlarged, as the Assembly House and Assembly Chamber of the Legislature. In its original form it can only be seen in early paintings and photographs. The house was stuccoed in two colours, and had, with its studiously proportioned Roman Doric colonnade, a bold Italian air. The portico and pediment are reminiscent of Palladio's Villa Malcontenta of 1551. The piazza treatment of the ground-floor is also evidently based on a Palladian motif. Much else in the composition and in particular the river elevation, with Ionic pilasters on the upper level of the tower, flanked by twin cupolas, suggests influence from English sources. The central tower was possibly designed by Coleman as a lookout towards the Roads to watch for the arrival of shipping.

Arcades and piazzas are a distinguishing feature of Coleman's work; so are Tuscan and Roman Doric columns, wide and deep verandahs, hooded openings and louvred windows—in short all those things which succeeded in reconciling

¹² David Skene Napier, born 1798, was the eldest son of Professor McVey Napier, Writer to the Signet, Professor of Conveyancing in the University of Edinburgh and a partner in the firm of Napier & Scott, one of the first merchants in Singapore.

¹³ John Argyle Maxwell obtained permission from His Majesty at the House of Lords in London to trade in India and the Eastern settlements. He first arrived in India on August 16, 1820, held several large shares in estates in Java. As early as 1823 he became a Justice of the Peace in Singapore, nominated by Raffles.

a classical character with the requirements of the tropics. Window openings are unglazed owing to the expense of imported glass and closed instead with thin split bamboo, or rattan, blinds, and Venetian shutters.

Coleman used local materials, narrow Malacca bricks and Malacca tiles, Chinese bricks and tiles, timber felled on the island, burnt local lime, and granite quarried from neighbouring islands. Coral atolls and reefs on small islands near Singapore provided an excellent lime plaster. As for building procedure, Coleman often contracted with his clients to build his designs for an agreed sum, though on other occasions would also invite tenders from various Indian or Chinese contractors for the execution of his designs. A great advantage in Coleman's work with contractors, craftsmen and workmen was his complete command of the Hindustani, Tamil and Malay languages, an advantage, not shared, it seems, by the covenanted servants of the Settlement, Government or the military officers.

To get an idea of the quantity of work done by Coleman, one ought to look at a lithograph published by J. T. Thomson in 1856, but apparently based on a sketch made in 1846. It shows the residential area of Singapore, and in it the majority or perhaps all the buildings visible are his. They give one an impression of grace, unity and cohesion. The same impression is conveyed by an album of panorama photographs taken early in 1868 for presentation to the Governor of the Colony, Col. Orfeur Cavenagh, and given to Singapore by his granddaughter in 1954. The panorama is taken from the summit of the newly completed tower of St. Andrew's Cathedral which replaced Coleman's earlier church on the same site.

As early as June, 1827, Coleman was employed as a Revenue Surveyor on the survey and preparation of titles for land in Singapore Town. His services were paid for by certain fees levied on the holders of the ground on the issue of their respective leases. Coleman employed a draughtsman whom he paid 10 per cent of the fees so collected. Lt. Jackson had commenced surveys in 1822, was appointed Surveyor to the Settlement on February 1, 1826, but resigned from the appointment in 1827 owing to ill health. Coleman first surveyed titles issued mostly to cover shop house lots in the town.

In 1820 he was engaged, in addition, on a Topographical Survey of Singapore, for which he was paid a contract fee which spread over a number of years.¹⁴ He surveyed the islands that form the new harbour of the port, all the shoals, and the slopes and heights of the hills along the coast in minute detail in the event of it being found necessary to fortify the harbour.¹⁵ The map resulting from Coleman's survey, the first comprehensive map of the island and town, was engraved by J. B. Tassin and printed at Calcutta in 1836. It received the approval of the Court of Directors of the East India Company in London in 1848.

As the map shows, the best residential area lay between the

¹⁴ East India Company Records, Raffles Museum, Singapore, vol. 23, p. 153. Lett. dated April 6, 1829, from Secretary to Government, Fort Cornwallis, Penang, addressed to the Resident Councillor, Singapore, refers to Coleman's survey. The Survey Plan now sent is certainly the only one of the kind that after the expenditure of many thousands of dollars has ever appeared at any one of the three Settlements. (Singapore, Penang and Malacca.)

¹⁵ In June, 1827, war with France had threatened on account of Portugal.

Esplanade and the hills. It was divided by roads into square plots in which detached houses in their own compounds with magnificent gardens were planned for merchants and other Europeans. The houses were all white with red roofs and green Venetians. Strangers coming to Singapore generally praised them as being very handsome. Coleman is known to have built almost all the large mansions of this period for the merchant community. A contemporary description gives a picture of the town in 1838, with 'long rows of piazzas, the whitewashed buildings covered with tiles, the low but cool and comfortable bungalow, the princely mansions in the suburbs, the fine esplanade, the umbragious arena and tall ri (casuarina) trees . . . the bustling scenes in the commercial area on the Boat Quay and Circular Road.'¹⁶

On a site close to the Esplanade granted in 1828 on a 999 years lease, Coleman built his own residence. It was completed in May, 1829, and he lived in it until he left the Colony. The front of the building was extended to increase the accommodation, and has been converted into shops. It is a large two-storeyed brick house, seven bays wide, with a depth of eight bays, in simple classical design, and with a double bay for the porch and portico. Tall flat stuccoed pilasters are carried round the whole building supported on a deep plinth. The ground floor has a piazza treatment with round-headed openings. The first floor verandahs, ideally suited to the climate, were filled in at some point before 1860, but apart from these changes the house seems to be still much as Coleman left it. The decorations in the dining room include a short frieze showing harp and shamrock leaves in low relief, presumably placed there by Coleman himself. The panelling of the dining room walls, and the deep coved ceiling, and full cornice with dentils, in a lofty room on the first floor are executed in Georgian style. A large paddock with stables and out-buildings, was attached to the house. In it Coleman maintained an establishment of horses, grooms and carriages second only to the Governor's. After Coleman left Singapore, the house was leased by Gaston Dutronquoy as the London Hotel,¹⁷ and was occupied by a succession of hotels. It was here that Joseph Conrad met Captain Tom Lingard—a buccaneering character—in 1888 when he had obtained his first command, the 'Ottago,' inherited from a dead captain in Bangkok, and had sailed her into Singapore Roads. Coleman's house was then a raffish place. In the taproom on the ground floor, it is said, Conrad heard Lingard tell many tales of the Borneo and Malayan coast. Many years later Lingard appears as a composite character in the Conrad novels, with their scenes laid in Borneo or Malayan waters.¹⁸

¹⁶ J. T. Thomson, *Some Glimpses into Life in the Far East* (London, 1865), p. 16.

¹⁷ Gaston Dutronquoy first arrived in Singapore from Paris in 1839. On the ground floor of the London Hotel he opened the first repertory theatre, the Theatre Royal. Dutronquoy became Singapore's first photographer in 1843, using the newly invented Daguerrotype. Later he disappeared, murdered, it was whispered, while looking for gold in Muar in Johore on the Malayan mainland.

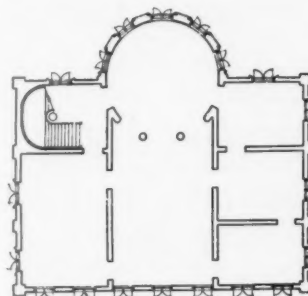
¹⁸ Tom Lingard appears as a character in Conrad's *Outcast of the Islands* (1896), in *Almayer's Folly* (1895), his first novel, and in *The Rescue* (1920). Conrad conjures up the tropical landscape in magic terms. In *Yacht, a narrative and two other stories* (1908), appears his short novel, *The End of the Tether*, which gives a comprehensive picture of Singapore in the late forties, though Conrad was writing in 1900. He describes Government House on the hill, and Coleman's house as a hotel, and the verandah.

A black and white photograph showing a row of houses and a church with a tall steeple, viewed from across a body of water. The word "houses" is written in the top right corner. The houses are white with dark roofs and windows. The church is on the right side of the image. The water is in the foreground, and there are trees and foliage in the background. The word "houses" is written in a simple, sans-serif font in the top right corner.



1, two houses designed by Coleman in the 1830's, now destroyed. 2, Coleman's own house in 1863, and 3, as it is today. 4, plaster work in the dining room.

The house of C. H. Caldwell, Senior Sworn Clerk to the Magistrates, built by Coleman about 1841. Right, plan, and below, 5, entrance front, with its finely detailed entablature and Doric pilasters. It became the Singapore Convent in 1852 after Caldwell had absconded from the colony with \$150,000.



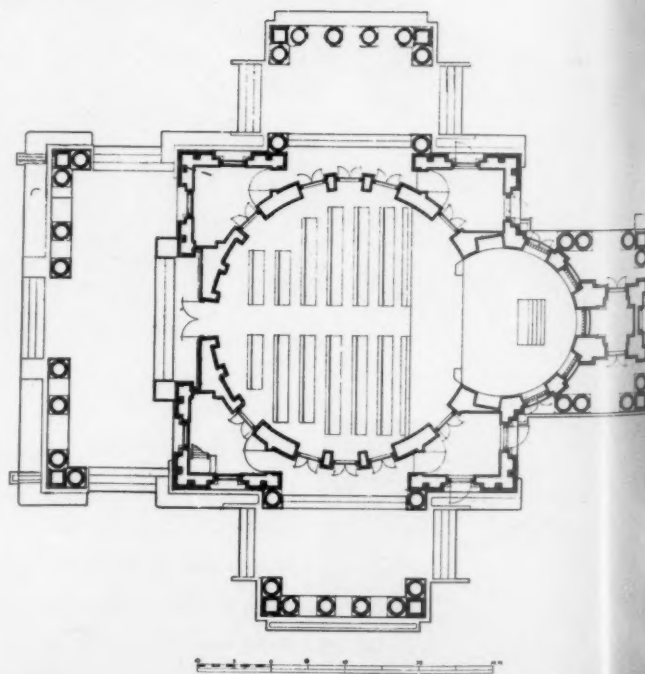
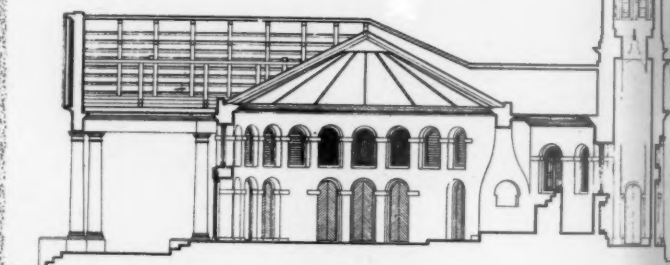
churches



St. Andrew's church was designed by Coleman in 1835, after designs by Calcutta architects had been rejected, and the lithograph of 1841 shows its original condition, 6 and 8. The government surveyor, J. T. Thomson, added a tower and spire in 1842, 7. The church was considered unsafe in 1852, and was demolished two years later to make way for the Cathedral. Also shown in 6 are a pair of Coleman mansions of 1829, as well as Coleman's own house, Grant's house, and—on the hill—Raffles' Residency.

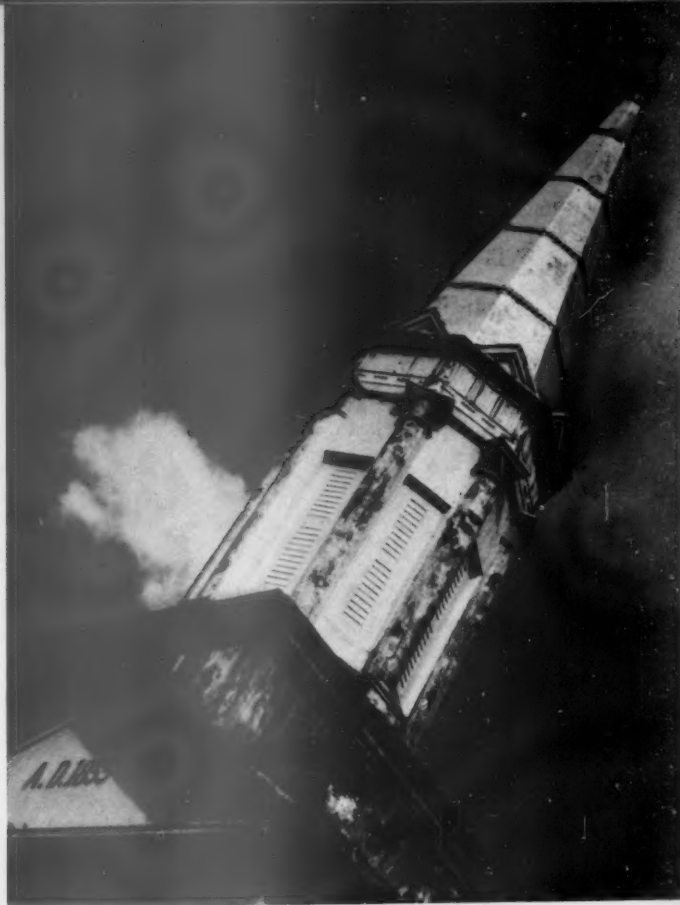


The Armenian church of St. Gregory, 1835, originally had a dome and bell turret, following the design of the Dutch church at Batavia. The dome was removed and the tower added by Maddock in 1853. Below, section, and bottom, plan of the church after alteration; opposite, 9, south elevation; 10, detail of the east end showing Maddock's later and coarser mouldings; 11, Maddock's steeple with its naïve miniature pediments; 12, the north portico, and 13, a detail of the interior





10



11



12

13



armenian church contd.: two details: inside one of the porticoes, 14, and the bay next to it, 15, showing the wooden shutters and louvres.



14



15



16



mosque: 17, built about 1840-3 by Haji Fatimah, a Malacca Malay. The single minaret, 16, recalls those of the Malacca district. Though not known to be by Coleman, its decoration and the shape of columns, pilasters and mouldings suggest influence from the Armenian church.

17

cemetery: two monuments by Coleman in Fort Canning Old Christian cemetery, 18. The cupola motif derives from his designs for the Court House and from the turret which originally surmounted the domed roof of the Armenian church. They set a style for Christian monuments which persisted until much later in the century.



18



raffles institution: built by Coleman between 1836 and 1841 and still used as a school. The front, 19, shows the survival of Georgian traditions unusually clearly. The elevation, left, includes a three-storey addition of 1875, partly seen in the photograph.

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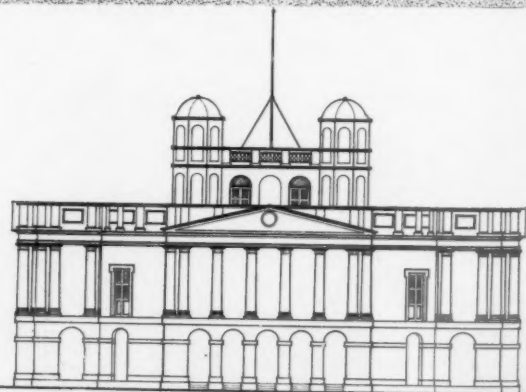
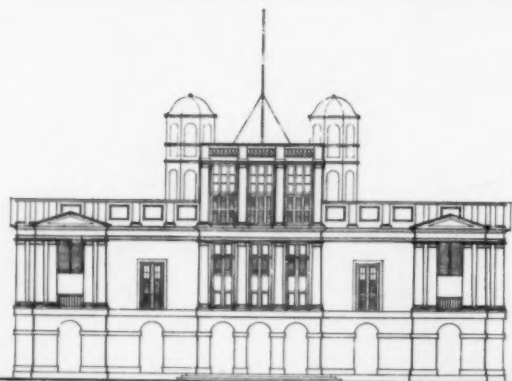
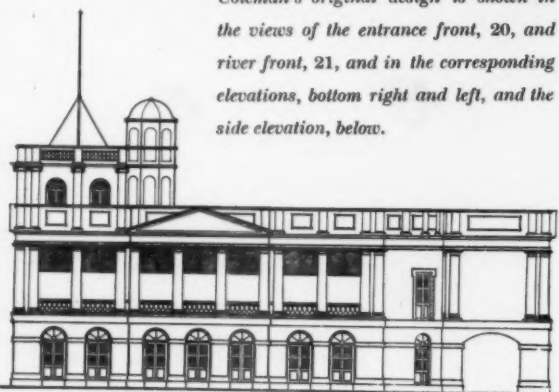


court-house

20

Originally designed in 1826 as a magnificent two-storeyed stuccoed brick residence for J. A. Maxwell, a Java merchant, the building was purchased by the Government for 15,000 Spanish dollars in October, 1841. Though subsequently extended at various times,

Coleman's original design is shown in the views of the entrance front, 20, and river front, 21, and in the corresponding elevations, bottom right and left, and the side elevation, below.



In the same year in which Coleman completed his house he built two on the site where the Adelphi Hotel now stands. Their outbuildings were roofed with slates in the 1830's, an innovation for Singapore. The houses are shown on the left in a sketch made in February, 1837, by a draughtsman on the French corvette 'La Bonite'. The sketch was lithographed by Bichebois and Lauvergne, and published by Arthur Bertrand in Paris in 1841. The lithograph also shows Raffles's Residency on the hill, Coleman's own house, and nearer to the church the house then occupied by Sir John Peter Grant,¹⁸ a Calcutta magistrate, who spent vacations in Singapore. The house for the latter was built by Coleman about 1836, on land which he owned and which faced his own house. The Grant house had originally a projecting rectangular wing, but about 1840 Coleman appears to have remodelled and enlarged it by the addition of semi-circular bays in the Regency manner. Coleman used Ionic columns the full height of the two storeys, with flat and unobtrusive Ionic pilasters. But he mainly relied here for his effect on the shape and spacing of windows and on good proportions.

The central portion of a house now standing at the back of the Adelphi Hotel compound and belonging to the hotel, was built by Coleman about 1838-40. It has the familiar piazza treatment on the ground floor, with Roman Doric columns and open verandahs on the first floor. The two wings are later additions. Originally the middle part had a porch at the side opening on to North Bridge Road.

A house built for H. C. Caldwell,²⁰ Senior Sworn Clerk to the Magistrates of Singapore, is a charming example of Coleman's later work. It was erected in 1840 or early in 1841. It remained in Caldwell's hands until August, 1852, when it was purchased by Father J. M. Beurel for the establishment of the Singapore Convent. The spacing of the windows gives breadth and architectural solidity to an otherwise modest house. Coleman has used Doric pilasters the full height of the building, capped by a full Doric entablature, with its projecting cornice, above a decorative classical triglyph frieze. Each window is fitted with its own projecting finely moulded stucco architrave. The windows have carefully detailed wooden shutters. The roof is hipped and covered with malacca tiles, surmounted by a jack roof, a construction designed for better ventilation and also used by Coleman in the design of his own residence. The simple shape of the house, its economy of details, and good proportion based on the classic orders is well related to its spacious former garden and surroundings. Towards the garden Coleman gave the house a loggia with elegantly proportioned piers and ellipse-headed arches.

During the same years Coleman was also busy designing godowns and warehouses. The oldest godown in Singapore, a warehouse block on North Boat Quay, was built about 1843 or earlier, 26 and 27. It is designed by Coleman, though he may not have built it. Formerly it extended along the quay, but part of it has been demolished. The building happily conforms with the scale and character of the riverside quay and is distinguished for its restraint. It employs Tuscan pilasters supported on a tall plinth, with arches below, and simple square-headed openings with Venetian shutters above. Another godown on the boat quay of Singapore river, though built as late as about 1860, is almost certainly a copy of a work by Coleman, 24. This godown was erected to continue (and double the size of) a similar building constructed for the merchant Edward Boustead between its site and South Bridge Road, about 1835, 23. The design is in the Palladian manner with a gigantic Doric order extending through two storeys and has its prototypes in the Brenta district, and at Vicenza. The centre intercolumniation is increased to afford clear access to the central doorway. The colour, texture and scale of the Chinese tiled roofs add a curiously palatial air. It is the handsomest godown on the quay, even today. The godown which it copies can be seen in various lithographs, e.g., J. T. Thomson's of 1856, in a woodcut published in Bickmore's *Travels in the East Indian Archipelago*,²¹ and a number of early photographs. On the first floor of the godown the merchants and their clerks kept their accounts and watched for the arrivals of shipping, the ground floor being used for the storage of merchandise.

Coleman's survey of the Island in the early 1830's disclosed vast areas of land under cultivation by Chinese settlers. So a surface utilization map was prepared indicating the number of settled inhabitants. From the heart of the town main highways run fanwise covering most of the island. These country roads, first surveyed by Coleman, through mangrove swamps and jungle, were constructed by convict labour.²² Coleman first employed convicts on large public works before his official appointment as superintendent of Public Works. Under his direction the construction of the road system of Singapore progressed. Large areas of marshes were cleared, drained and formed into new streets and roads on the outskirts of the town. The land, divided into lots, was sold by public auction and developed for housing. In 1831-2 more than ten miles of streets and roads were constructed, through areas of country formerly quite uninhabitable. A large navigable canal was also completed by Coleman to drain several square miles of land previously rendered useless by inundation.

Surveying and building outside the town were not without perils. In 1831 a tiger leapt into the thick of Coleman's survey team, when he was laying out a new road in the jungle about four miles from the town. The animal landed on the theodolite, which was broken, but no-one was injured. No work was undertaken in the jungle after this incident without weapons.

At about this time the military engineer appointed Staff Officer of Public Works was unable to prepare plans for public buildings,²³ and the Settlement Government commissioned Coleman to design them in future. In the earlier years buildings in Singapore erected by

William Napier²⁴, a Law Agent and with Edward Boustead, for the establishment of the newspaper *The Singapore Free Press and Mercantile Advertiser*. The first issue appeared in October, 1835. It forced *The Singapore Chronicle*, which had appeared since 1824, to disappear in 1837. Thereafter the *Singapore Free Press* remained the only newspaper, until the first number of the *Straits Times* came out on July 16, 1845. *The Singapore Free Press* is still published in Singapore as it later was taken over by the *Straits Times*, issued as an afternoon edition, when the original name was retained.

Members of the merchant community, Government officials and their families died early in the Settlement. On several occasions Coleman was engaged to design monuments. In 1827 he designed a memorial to Sir Stamford Raffles who had died in England, not yet forty-five, the previous year. It contained inscriptions in four languages, Malay, Chinese, Latin and English. The money voted by subscription was eventually spent for the purpose of completing the building of the Raffles Institution, and to make the building fit for schools on an extended scale. Coleman's design was not executed. But two of Coleman's monuments survive, 18, both of interesting classical shape, cupolas supported on slender dwarf Ionic columns, with a decorative floral frieze moulded in plaster.

Coleman prepared his design for the Armenian Church in 1834. A contract with a Malabari Contractor for 3,500 Spanish dollars, was signed on December 5, 1834, and building commenced immediately. On completion of the contract in January, 1836, the total cost was 5,058.30 Spanish dollars, and Coleman received 400 dollars as architect's fees. The plan, of this extremely interesting building, undoubtedly derives from that of the mother church, also dedicated to St. Gregory, at Echmiadzin, Vagharshapat, near Erevan, in northern Armenia.²⁵ It is unlikely that Coleman had an engraving of this plan, and more probable that the Armenian elders described their mother church to him. There were only twelve of these elders of the community in Singapore. Most English churches of Coleman's time with an oval or circular plan derive from James Gibbs's first circular design for St. Martin-in-the-Fields, published in his *Book of Architecture* (London, 1728),²⁶ and it may well be so with Coleman's Armenian church, but the way in which he has enclosed his circular church with a rectangular cruciform structure, is certainly more interesting.

Externally perhaps the most striking feature of Coleman's design is the boldly executed columned porticoes, 9 and 12. Coleman here makes use of giant, well proportioned, Roman Doric columns and pilasters. The simple, yet vigorous, detailing of

When the convicts could not be marched out to and from their daily work to the prison, owing to the long distances they had to traverse, Coleman constructed temporary buildings for them surrounded by a fence. In these 'commands' the convicts were located until the work on which they were employed was completed, and in many cases the 'commands' became permanent stations for the convicts employed in maintaining the roads.

Coleman himself rode and visited works under construction even in the country some eight miles from the town at least two or three times a week to inspect the progress of road building.

Even after his appointment as head of the Public Works Coleman continued with his busy private practice. During his appointment he designed the Armenian Church in 1834, and in 1835 the first St. Andrew's Church, which was completed by 1837, to be replaced, on the same site, in 1856, by the present Cathedral. During 1836 to 1841 Coleman also erected the Raffles Institution. In spite of his extensive duties and professional activities, Coleman became a publisher too, responsible with

¹⁸ Sir John Peter Grant was a member of the Commission on Prison Discipline appointed by the Governor General of India in 1837.

¹⁹ H. C. Caldwell's principal claim to fame is that he abandoned from the settlement with \$160,000.

²⁰ In East India Company Records. Raffles Museum, Singapore. Vol. U.3, p. 51, a letter from Governor Ibbetson to the Resident Councillor, Singapore, dated December 4, 1833, recommending payment to Coleman for the designs of market, and convict jail (650 Spanish dollars) and referring again to the inability of the Staff Officer to prepare plans. As by then Coleman was Superintendent of Public Works, his fees refer to private commissions by Government before his official appointment.

²¹ Coleman's appointment was sanctioned by the Court of Directors of the East India Company at Leadenhall Street, London, in *No. 6*, 1835, para. 19. Commonwealth Relations Office Records.

²² Committee of Prison Discipline Report, printed at the Baptist Mission Press, Calcutta, 1838.

²³ William Napier (born 1804) was the younger brother of David Stone Napier (see Note 12). He was a great friend of the first white Rajah of Sarawak, Sir James Brooke, and was appointed the first Lt.-Governor of Labuan, largely owing to Brooke's influence. Known as 'Royal Billy' Napier, he invested Brooke with the K.C.B., in Singapore, in 1845, but was removed from Labuan owing to his overbearing temper in 1851. He married Coleman's widow on October 5, 1844, and adopted Coleman's infant son.

²⁴ The plan of St. Gregory, at Echmiadzin, is illustrated in plate No. 1 (*Echmiadzin Armenie*) in *Monuments d'architecture en Georgie et en Arménie*, by D. Grimm (St. Petersburg, 1864) and also by Strzygowski, Wulf and others.

²⁵ There is a prototype of Gibbs's design for his Circular Church in Andrea Palladio's *I quattro libri dell'architettura* (edition of 1601), Libro Quarto, p. 76.

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⁵⁵ There is a prototype of Gibbs's design for his Circular Church in Andrea Palladio's *I quattro libri dell'architettura* (edition of 1601), Libro Quarto, p. 76.

the door and window openings, studiously proportioned, all betray the work of an accomplished designer. The simple roundheaded entrance doors in the three porticoes, with similar but smaller openings above, are fitted with finely detailed joinery, 14. Fixed wooden louvres are used set in the upper windows, 15. They admit light into the body of the church without any glare. The appearance of the building is enhanced by the use of broad wall surfaces, curved inside the porticoes, defined by a generous projecting sill, and a simple string course, a fine entablature and balustrades are carried round the whole building. *The Singapore Free Press* of March 17, 1886, describes the building in detail.

'The interior of this church is a complete circle of 36 feet diameter with a semi-circular chancel of 18 feet wide on the East front: four small chambers, two of which are intended for staircases, and two for vestries, are designed so that the body of the church forms an equilateral square: from these project three porticoes of six columns each, which shade the windows and entrances and afford convenient shelter for carriages in rainy weather. The principal order is Doric, surmounted by a balustrade, the top of which is 23 feet high. The roofs of the porticoes, vestries, and chancel are flat, and that of the body of the church a truncated cone rising 10 feet, with a flat space of 12 feet diameter on which is erected a bell turret, with 8 arches, and as many Ionic pilasters. The height of these pilasters, with their entablature is eleven, and that of the dome which they support, six feet. The whole being surmounted by a ball and cross the top of which is 50 feet above the floor of the church. The design is by Mr. G. D. Coleman, and whether owing to the abilities of the workmen, or the vigilance with which that gentleman superintended them, we know not; but it appears to us that the Armenian church is one of the most ornate and best finished pieces of architecture of which this Settlement can boast.' The tower and spire were added by an English architect named Maddock about 1858, 10 and 18. He removed at the same time the domed roof, described above, including its bell turret with the ball and cross, and substituted a pitched roof covered by Chinese tiles. The Armenian church is a building of considerable elegance and charm, and the tower (despite its later parentage) is an addition in a refined taste. The church has the distinction of being the oldest ecclesiastical building in the Colony of Singapore.

Before Coleman's design for the first Church of England church was approved, several plans submitted by Calcutta architects were examined and set aside, because they were not provided with verandas or any other contrivances for shading the building

from the glare and the heat.²⁰ Building commenced in November, 1885. The lithograph of 1841,²¹ 8, which we have noted above and which was based on a sketch made in 1837, illustrates Coleman's design. The cost of 10,000 Spanish dollars was low, as Indian convicts were used in the construction. The building was shaded by porticoes 30 feet wide, and 102 feet long, on each side, with main elevations 95 feet wide with handsome pediments. The porticoes enclosed carriage roads and above them, on three sides, were galleries. The body of the church was 47 feet between the pedestals of the interior columns, and semi-circular at the western end. Staircases which led to the galleries over the porticoes were placed in the angles cut-off by the semicircle. The east and west fronts with hexastyle porticoes of Roman Doric giant orders, in Palladian style, show further influence from James Gibbs's *Book of Architecture* and were possibly based on the executed design for St. Martin-in-the-Fields, London. Glazing appears in this building for the first time, with casements divided in Georgian proportions. A detail from the lithograph of 1841 shows a boldly projecting cornice, a range of Georgian dentils and a classical frieze with triglyph motifs, moulded in stucco. Subsequently,

²⁰ The Bishop of Malacca in 1834 addressed a meeting of the European inhabitants in the Court House, and proposed that the Church should be neat, elegant and commodious, such as would adorn the neighbourhood, and be suitable for the admirable site set apart for it many years earlier. The Bishop saw no reason why plans should not be obtained from Calcutta architects. Resident Councillor Bonham requested Calcutta to furnish plans, but added that in his opinion Coleman was entirely competent to prepare plans for this church, or, indeed, for buildings of a much more elaborate nature. *East India Company Records, Raffles Museum, Singapore, Vol. II, p. 22.* Lett. to Fort William, Calcutta, by Acting Governor S. G. Bonham dated Singapore, October 17, 1834. The Calcutta plans were prepared by various architects in the Presidency and forwarded to Singapore the following year, but none of them proved sufficiently attractive, or, indeed, suitable for Singapore's climate. Coleman must have produced a revised design after the plans he had originally submitted to Raffles in November, 1833, and this was at once approved.

²¹ Published in Valliant, *Voyage autour du Monde Sur la Corvette 'La Bonite'* Paris, 1841-52.

a tower and spire were added by John Turnbull Thomson (Government Surveyor, Singapore, 1841-55), to please the Bishop of Calcutta, 7.

The addition does not seem to have given universal satisfaction; Governor Butterworth in 1845 wrote very scathingly of it. In 1852 Coleman's church was considered to be unsafe, and services were no longer held there; some two years later it was demolished to make way for the present church, now the Cathedral.

Lt. Jackson instructed by Raffles in 1823, prepared plans for the Singapore Institution with an estimate for 15,000 dollars. Commenced that year unsuccessfully, the building was not well constructed, and at the end of 1832 was still unfinished and in a ruinous state. It was originally built in the form of a cross, with a wing to be later added at each arm.

Plans and estimates were furnished by Coleman for finishing and in future enlarging the building. Coleman declared himself willing, in May, 1836, to complete the central building in two years for 5,700 dollars, and by May, 1837, the building was indeed almost finished, two stories high, of brick, 120 feet long and 60 feet wide. Plans had been made in 1823 for both the proposed wings, and foundations were laid. In November, 1838, Coleman built one wing at a cost of 2,800 dollars. This was completed in May, 1839. Then some Siamese noblemen sent a gift of money from Bangkok towards the expenses of the second wing, and this was built to Coleman's design in 1841 at a cost of 3,090 dollars. The Raffles Institution is still in use as a school and is a simple and charming finely proportioned example of Coleman's tropical Colonial style, 19. The modelling of the flat surfaces of the tympana in the pediments, the continuous cornice and the modest unobtrusive detailing of the segmental or round arches of the piazza arcades make no pretensions to architectural magnificence, and the design is the better for it.²² Working exceedingly hard in an

²² The three-storey block adjoining the main building was added in 1875-76. The building, carefully maintained by the Government, is in a good state of preservation.

enervating tropical climate, a climate in which 'sustained effort is peculiarly difficult, rarely necessary, and often unwise,'²³ Coleman's health was sorely undermined. His doctor advised a return to a more temperate climate, and he decided to follow this advice. On June 25, 1841, a public auction was held of his horses, carriages and household furniture. On July 4, 1841, he left Singapore in the barque 'Midlothian,' bound for Europe after fifteen years' continuous work in Singapore, and twenty-five years' residence in the East.²⁴

He spent some time travelling on the Continent, and then went to London, where, on September 17, 1842, he married Maria Frances, the youngest daughter of the late George Vernon, of Clontarf Castle, near Dublin, at St. George's, Hanover Square. Coleman, aged forty-six, is described as the son of James Coleman and in the Honourable Company's Service. Mrs. Coleman's age is given in the marriage certificate as twenty-one. But Coleman could no longer be happy in Europe. In 1848 he left with his wife for Calcutta, and on November 5, in the British brig 'Pantolon,' they sailed for Singapore, arriving on November 25. A son was born to Mrs. Coleman on December 27, 1848, in Singapore. Three months later, on March 27, 1844, after a short illness, Coleman died. He was aged 48 and is buried in Fort Canning Cemetery.

The Free Press spoke of him in the following terms:

'... To his good judgment and untiring energy we mainly owe the great extent of good roads on this Island, and to his taste and skill as an architect we are also indebted for many of the elegant buildings, both public and private, which adorn Singapore. ... He fell a prey to fever, brought on by exposure to the sun.'

This view is confirmed by a letter of Governor Bonham to the Supreme Government dated November 15, 1840, and in which it is stated that Singapore is indebted to Coleman

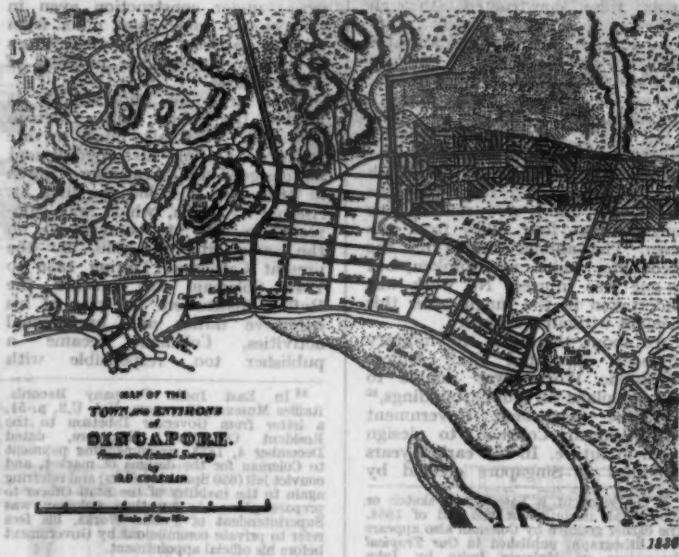
'for its present creditable appearance, and ... for so large and an increasing Land Revenue. During the past ten years alone ground ... laid out by Mr. Coleman ... has fetched a capital sum of upwards of one-half Lac of Rupees.'

The same letter also mentions some more personal qualities: vigilance, firmness of purpose and 'a certain weight in society.' To this J. T. Thomson whose lithograph of Singapore was mentioned earlier on, adds 'ready joke and smart repartee.'

We would wish to know more about Coleman the man, but the traits of character recorded are enough to recognize that he must have been as impressive personally as he undoubtedly is in his architecture.

²³ Quotation from the *Official Census Report of the Federated Malay States, 1933* (Government Printer, Kuala Lumpur, 1933).

²⁴ *Vide Singapore Free Press and Mercantile Advertiser*, July 1, 1841.



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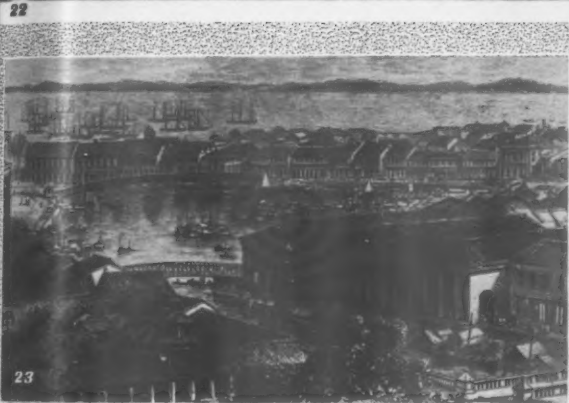
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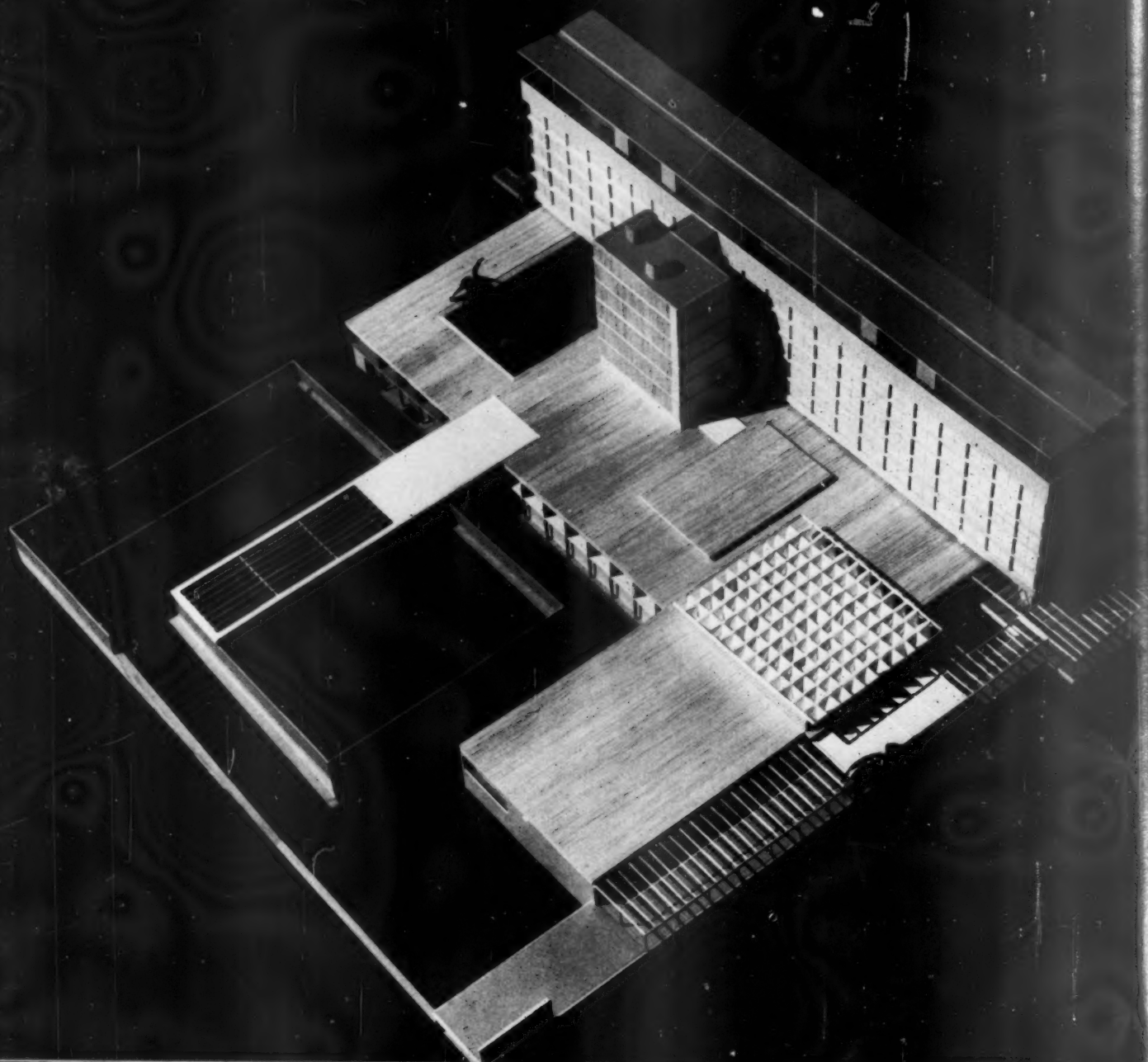
22 and 25, two views of the Boat Quay about 1855, with Coleman's warehouses on the right. 23, the Palladian warehouse designed by Coleman in 1835, and doubled about 1860, and the surviving fragment, 24. Past and present state are also shown in the frontispiece, page 168. 26, Coleman's North Boat Quay warehouse, built about 1843, and 27, the remains today.

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Two views of the model of the hotel at Lagos, made by Dennis E. Pugh of Architects Co-Partnership, are shown opposite page 181. Above, 1, from the north, and below, 2, an aerial view from a similar direction, showing the attached service tower. On the left is the ramp and forecourt leading to the main entrance; to the right of it is the projecting wing of the banqueting suite.



HOTEL AT LAGOS

WEST AFRICA

ARCHITECTS ARCHITECTS CO-PARTNERSHIP

Lagos, with its thriving commerce and growing importance as the capital city of Nigeria, lacks a first class hotel. The proposed site of this building is on the north-west promontory of Victoria Island, next to the bridge which leads from the Marina across Five Cowrie Creek; this is conveniently near the centre of the town and yet comfortably away from its noise and commands fine sea views from south to north-west. The site is at present a low sand bar only partly covered with rough scrub vegetation, and it will be necessary to raise the general level of the ground: this is already gradually being done by pumping sand from the dredgers which are continually working to keep the main harbour channels clear.

The hotel consists of two main elements: the bedroom block and the public rooms. In the bedroom block there are one hundred bedrooms arranged twenty to a floor on five floors, all facing south-west and approached by screened galleries on the north-east. There are two larger suites, on each floor at the extreme ends of the block. The private balconies, on to which all bedrooms can be fully opened, are adequately screened by louvers so placed that they prevent the penetration of direct sunlight and the heating up of the building structure without obscuring the view. On the roof are four private maisonettes for the senior staff and their families.

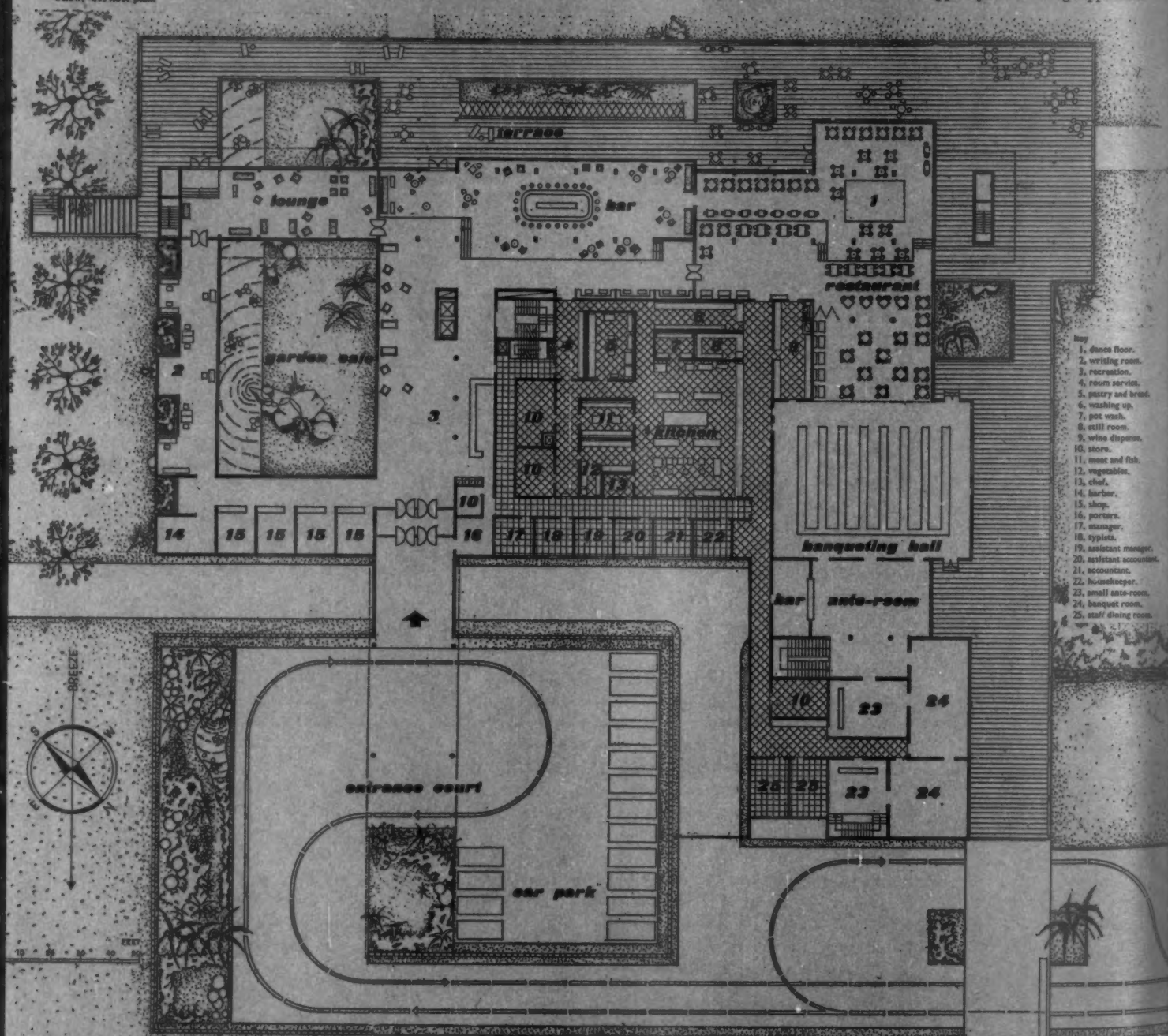
All vertical access is obtained from the service tower to avoid structure borne noise and to maintain natural cross ventilation of all bedrooms.

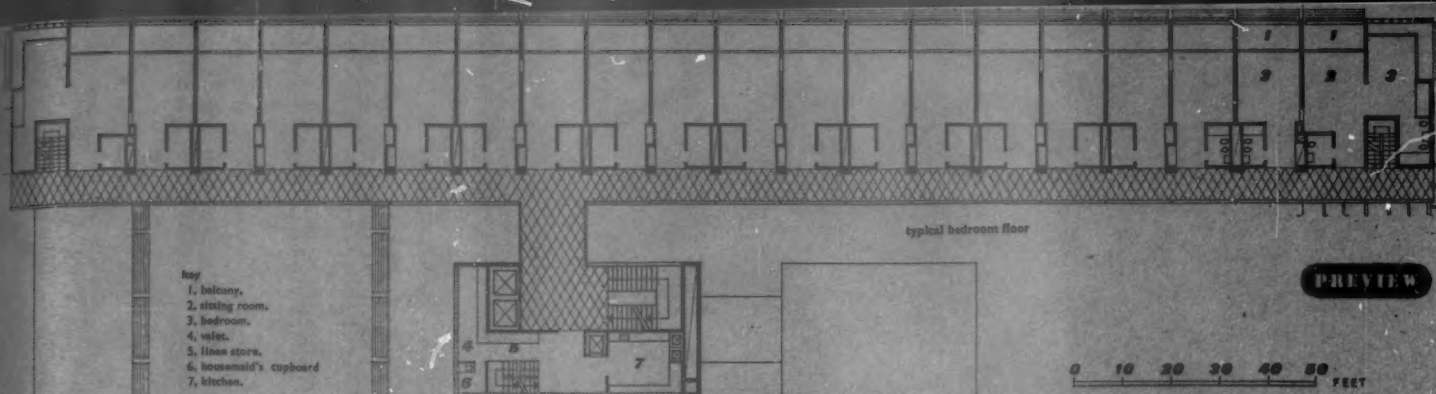
Beneath the block, and extending behind it to the north-east, are the main public rooms, with extensive views over the water. Also at this level, and situated centrally on the plan, is the kitchen. At ground level, beneath the public rooms and kitchen, are the service and storage. The service and banqueting entrances are at ground level and the main public entrance at first floor level, reached by a ramped road leading to a raised forecourt in which cars can be parked. The restaurant is arranged on two levels giving all

[continued on page 183]

Below, first floor plan.

3, from the north-west, as it would appear from the bridge approach.





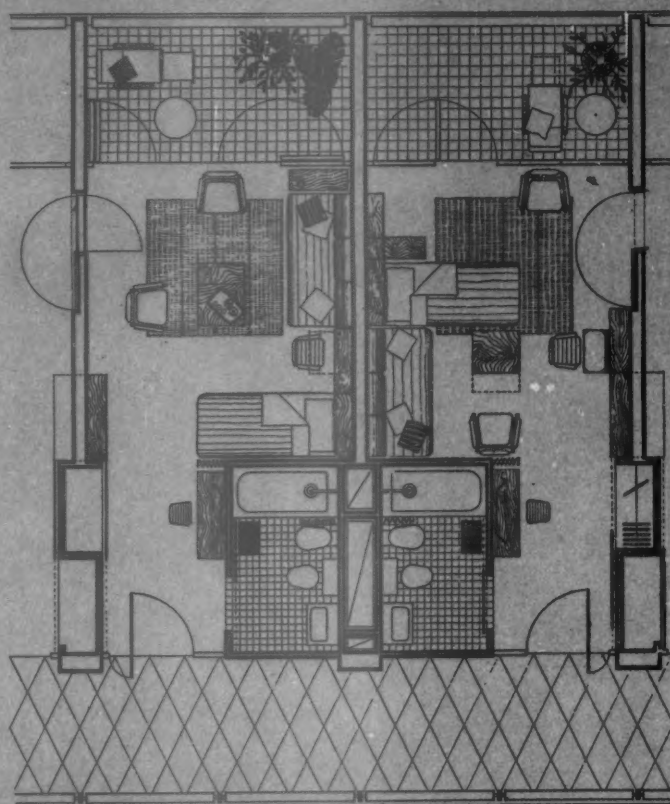
continued from page 181]

tables the possibility of a view over the water. All public rooms except the writing room give on to a terrace which surrounds the block on two sides. This terrace is interrupted at intervals by openings through which trees and foliage rise from the ground below, and a ramp leads through one of the openings down to the garden.

The banqueting rooms are designed to rely entirely upon air conditioning, and the kitchen on air extraction which discharges above roof level via the service tower. All other rooms in the building have been orientated and designed to allow both for air conditioning and for natural ventilation, by taking advantage of the strong south-west breeze. The air conditioning of bedrooms is by means of electrically operated units housed above each bathroom and served with chilled water from a central plant. It is intended that the opening of the first leaf of the glazed doors on to the balcony or of the louvres on the access gallery should automatically switch off the unit. This is considered preferable to permanent air conditioning as well as reducing the running costs of the plant.

On the ground and first floors the supporting structure of the bedroom block is constructed with reinforced concrete columns and beams; above this the concrete block walls between the bedrooms are load bearing, and the floors are of reinforced concrete pot. The remainder of the ground and first floors are partly reinforced concrete block walling. Externally the concrete block walls are rendered. Pierced screens of ceramic units are used where ventilation is

HOTEL AT LAGOS



bedroom arrangement at night

scale 1/8 in. = 1 ft.

required, principally in the wall surrounding the roof gardens of the penthouse maisonettes and in the end bays of the large suites on the bedroom floors. Pierced screens of concrete units surround the entrance forecourt.

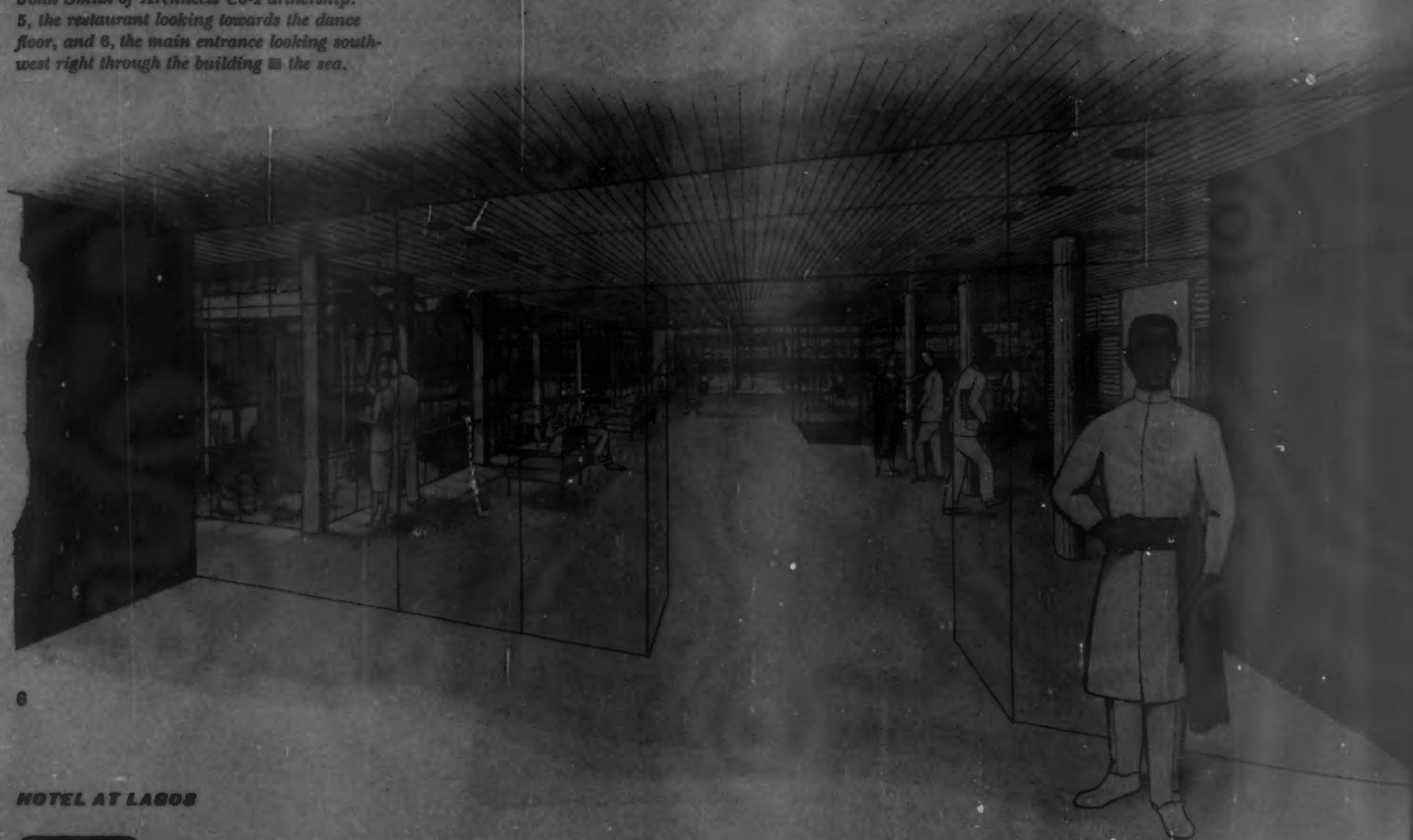


SOUTH EAST ELEVATION

Three further views of the model are shown opposite 7, top, from the east with the writing room and garden café in the foreground, centre, the hotel as it would appear from the beach, and 9, bottom, from the north-east.



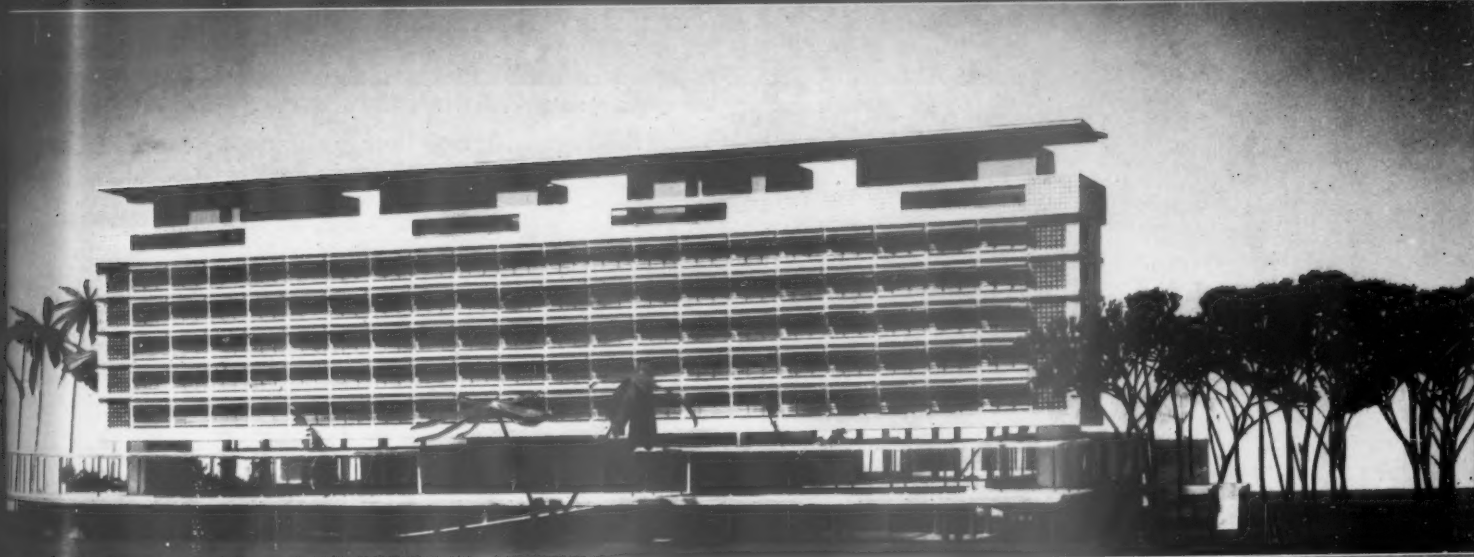
Two perspectives of the interior drawn by John Smith of Architects Co-Partnership. 5, the restaurant looking towards the dance floor, and 6, the main entrance looking south-west right through the building to the sea.



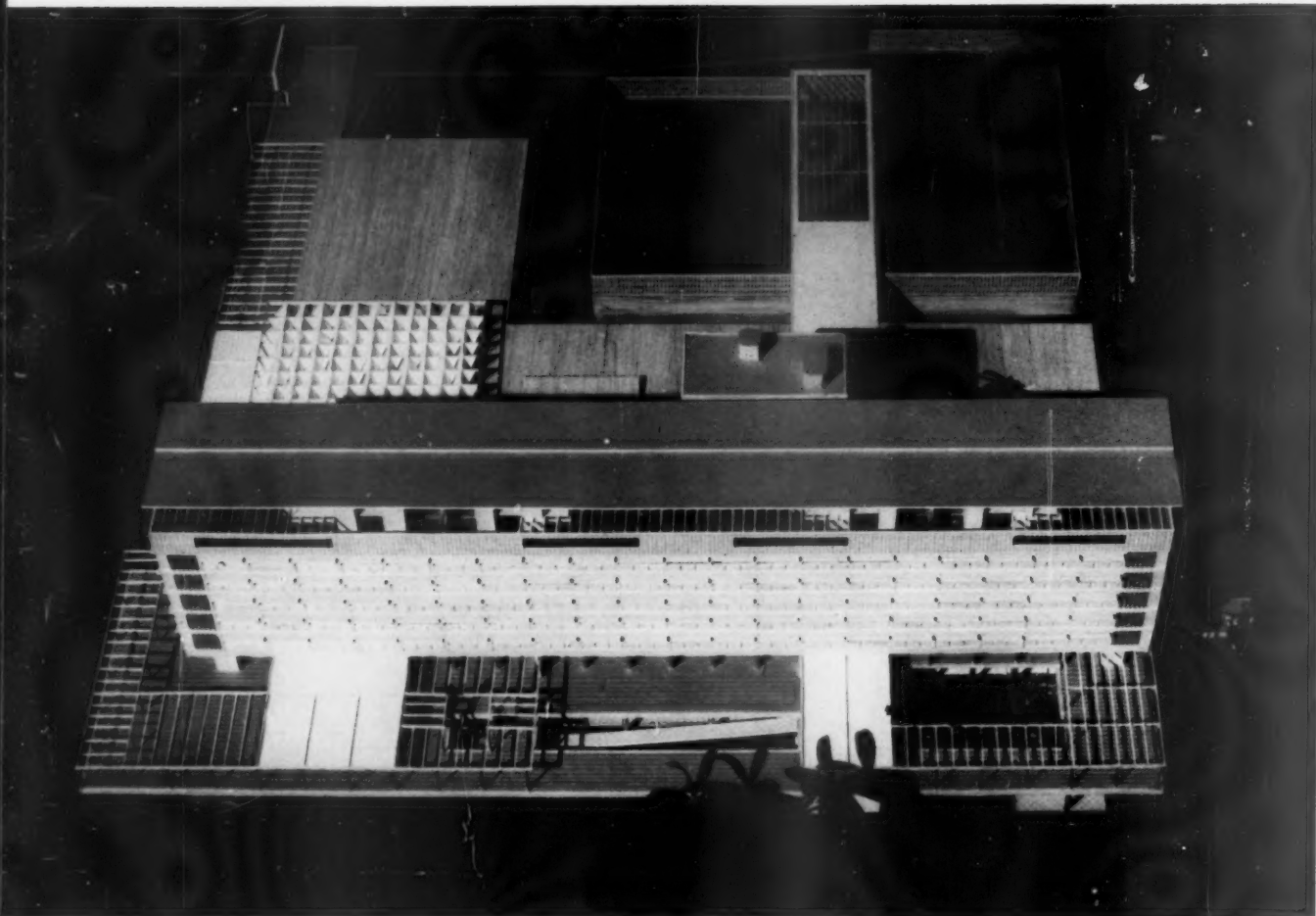
HOTEL AT LAGOS

PREVIEW

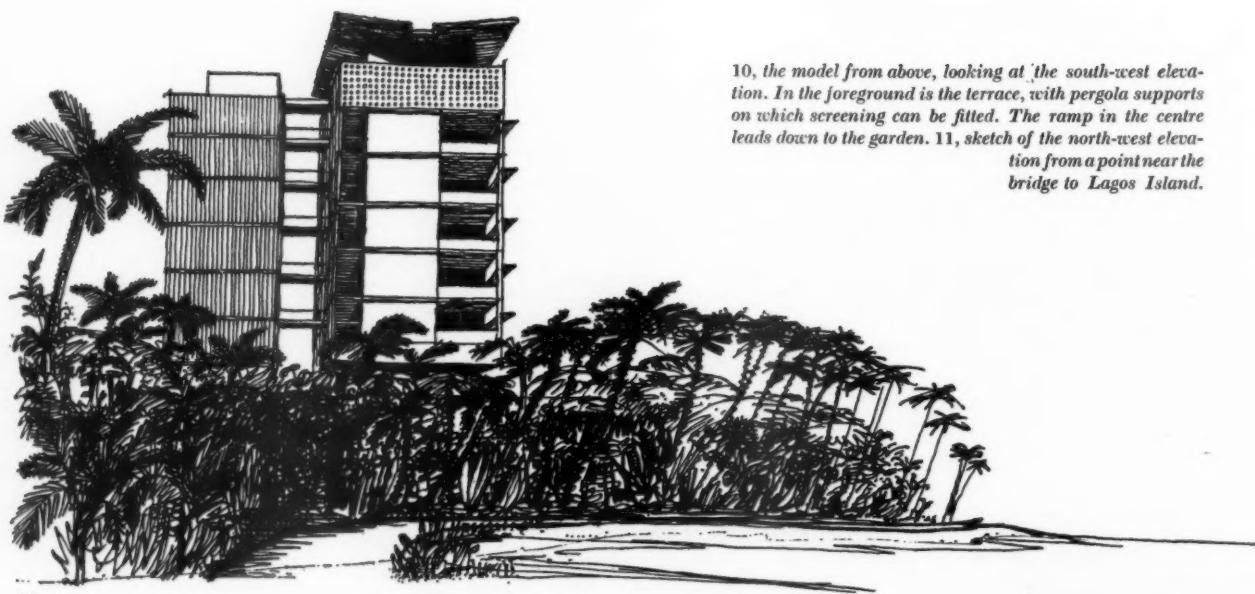
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HOTEL AT LAGOS



10



11

10, the model from above, looking at the south-west elevation. In the foreground is the terrace, with pergola supports on which screening can be fitted. The ramp in the centre leads down to the garden. 11, sketch of the north-west elevation from a point near the bridge to Lagos Island.

Gordon Cullen

Closure

The word Closure may be differentiated from Enclosure by contrasting 'travel' with 'arrival'. Closure is the cutting up of the linear town system (streets, passages, etc.) into visually digestible and coherent amounts whilst retaining the sense of progression. Enclosure on the other hand provides a complete private world which is inward looking, static and self-sufficient.

Hence closure is not intended to mean the closing of a vista, such as Buckingham Palace at the end of the Mall. For here the sense of progression and continuity is lacking whilst closure is rather the articulation of movement (the closed vista falls into the camp of enclosure). A building or wall which creates closure will generally provide also a feeling of anticipation.

Closure is effected by some irregularity or asymmetry of layout whereby the path from source to goal is not automatically and inevitably revealed to the eye as in the gridiron plan. This irregularity divides the route into a series of recognizable visual statements each one effectively and sometimes surprisingly linked to the other so that progress on foot is rendered interesting by reason of

- 1) the subdivisions created which are human in scale.
- 2) the provision of incident.
- 3) the sense of unrolling or revealing.
- 4) Identification.

A simple example of 'identification' can be obtained by

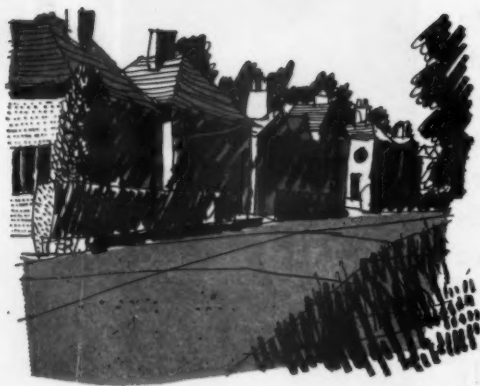
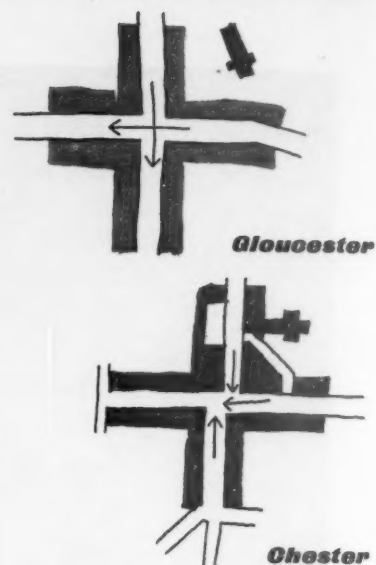


Two pictures which, although separated only by a point of view, illustrate the difference between Closure and Enclosure. Top, the wall on the right is an obstructive monster yet it deflects without stopping the movement: Closure. Below, though the archway will eventually suck you through like a bath-waste, in the meantime you have arrived and are surrounded and ready to stay that way: Enclosure.

comparing the centres of Gloucester and Chester, both similar in plan. In Gloucester the two main roads cross cleanly at right angles with the result that the visitor is confused, he cannot get his bearings, since the crossing looks the same from every approach. At Chester, on the other hand, the crossing is staggered slightly so that buildings block the view and clarify the situation by the provision of landmarks.

This in itself is justification enough for departing from the 'logical' straight line layout but it might also be noted that the building making a closure is in a key position and consequently such a position might be allocated to buildings which generally accentuate the towniness of towns—Town Hall, church, hotel, big store, etc. etc.

Gordon Cullen: CLOSURE



The photograph, above, a typical village scene (East Chilton) shows the application of closure. The projecting house effectively contains the eye as the road sweeps past. Yet how often is the art in such a device taken for granted? It is only when it is compared with cases where no art is used such as the obvious one of dead conformity to the road, below, that we realize the difference between closure and mere change of direction. To the right is a scene which is innocent of any art. It is also innocent of humanity; it is barbarism entrenched behind a stockade of bye-laws. The awful thing is nothing can be done about it to put it right. It is lost. Let it stand as a warning.



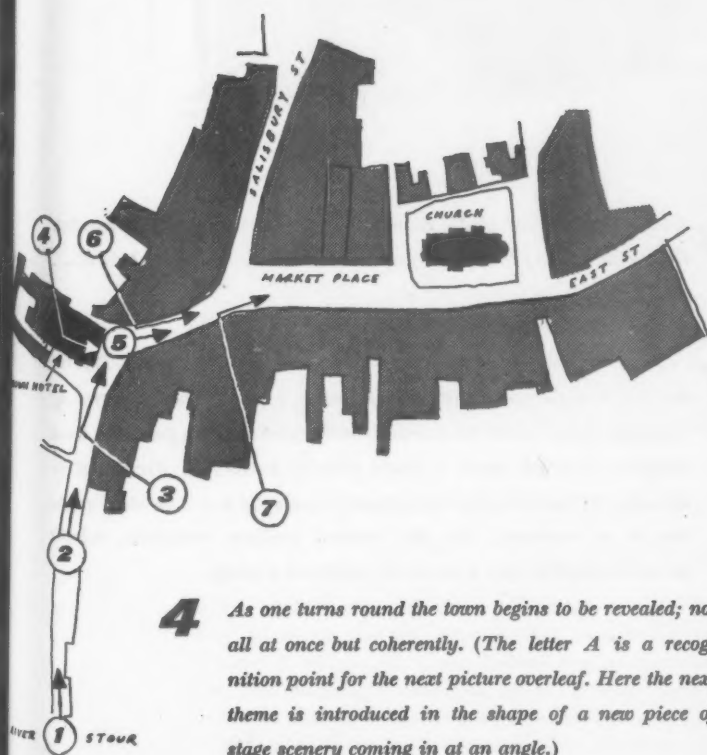
THE FOLLOWING SEQUENCE IN BLANDFORD FORUM

covers in a few hundred linear yards no less than six different effects of closure all got through the medium of the main road.

1 The square solid mass of the Crown Hotel faces the approach road as it crosses the river Stour. And what we see is not a secondary elevation, as might be expected, but the main elevation. Here is exactly the kind of entrance a market town ought to have, a pub which by blocking the vista both invites you in and fills you with anticipation as to what's just around the corner. The narrow gap . . .

2 . . . opens out as the road drives to the centre and the vista is cut short by the deflection of the road to the right. Closure transforms a line into an area, a road into a place, square or quad.

3 A quad, however, which is not only human in scale and not stuffed-shirt, but also not static. The quad proper creates static enclosure, the effect of which is to make the observer want to settle down if only on a seat; closure also creates enclosures but of the roving kind under which the eye (and the body) is forced forward from the one before to the one after. As the next materializes, the last disintegrates.



4 As one turns round the town begins to be revealed; not all at once but coherently. (The letter A is a recognition point for the next picture overleaf. Here the next theme is introduced in the shape of a new piece of stage scenery coming in at an angle.)



- 5** And now there is a clear example of the quad-like structure or sequence that is possible by the use of closure. The sudden widening and oblique angle of the road produce the sense of area rather than line, and the eye is made conscious of arrival by the sudden appearance of the town hall. In fact however there is no square. These are street scenes pure and simple.

The practical result of the application of the principle of closure is to create an environment that is quad-like in that though in fact one is moving in a linear context—the street—the points of visual reference are so arranged as to give the eye the illusion that it is imprisoned (pleasurably) in an area. The drawing of Buckingham, below, shows this. The linear street is given area by the projection of the Town Hall, not so much though as to slow down movement to a stop for there's something more to come. It is this progression from one statement to another that produces the particular charms of closure.



- 6** And as the scene unfolds the church tower, the climax, is at last revealed. Due to the angle of the road it performs the last act of closure before...

- 7** ... we enter the wide main street where everything is revealed. This is the finale to the successive acts of closure which formed a series of dramatic visual events in a co-ordinated sequence which provides, on a delightful domestic scale, a model piece of townscape. Accidental or deliberate? Those who invariably answer accidental to that question might like to be reminded that the Bastard brothers, architects, rebuilt the town complete after a fire in the eighteenth century.

current architecture recent buildings of interest briefly illustrated



1, the main entrance and office wing from the north-east

LABORATORIES AT WYTHENSHAW

ARCHITECTS: CRUICKSHANK AND SEWARD

The buildings consist of laboratories, workshops and administrative offices for electrical research and development, and are situated on an open site in Manchester's new southern industrial area (the same neighbourhood as that of the factory by the same architects illustrated in AR, December 1954, page 374). Owing to the rapidly changing research programme, flexibility of layout was essential; the building had to be planned for future extensions, and easy access had to be provided between laboratories and work-

shops. These requirements taken together with the nature of the site led to an open plan* in which the laboratory section and workshops are placed on opposite sides of a central block containing the heating and electrical plant. The canteen forms a separate building approached by a covered passageway. The laboratories form a series of one- and two-storey spurs projecting from a central spine. Staircases are placed at each intersection and

* Security restrictions prevent the publication of site and floor plans.

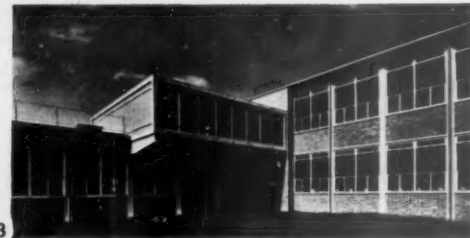
Laboratories at Wythenshawe

at the ends of spurs, and the open courts between the wings have been planted as lawns. The laboratories are formed by specially designed sectional timber partitioning, and the layout can be readily altered when required, or used as a clear space 150 feet long by 40 feet wide; the drawing office, for example, occupies such an area. The workshop is planned as an open area, with steel partitions forming stores, offices, and other enclosures. A steel framework is used, external columns and beams being cased with concrete. Infilling panels are of dark red rustic brickwork with flush joints. The laboratory wings, which are mainly two-storied, use portal type framing with a span of 40 feet; the floor areas are unobstructed by columns, to allow sectional partitions to be

laid out in any desired arrangement. The first floor and roofs to the laboratories are of hollow-tile reinforced concrete and contain embedded low temperature heating coils. The workshop roof construction is based on the use of plate girders spanning 90 feet. These carry welded RSJ rakers which in turn support patent glazing (E-W lighting) and metal roof decking. The ancillary accommodation grouped round the workshops includes a plating shop, fire station and garage as well as offices, cloakrooms and toilets. These ancillary rooms have reinforced concrete flat roofs. The various blocks of the laboratories and workshops are separated from each other structurally by expansion joints. The laboratory walls and ceilings are plastered and painted. The floors are of East African hardwood which provides a good electrical insulation and a durable wearing surface for trucking. In the workshops the walls are in fairfaced sand-lime brickwork and painted. The workshop floors are mainly granolithic screed laid monolithic with the concrete floor slab. Windows throughout the building are built up of standard steel sections. Heating is provided in the laboratories by low temperature heating coils embedded in the ceilings; high temperature radiant panels are used in the workshops. The laboratories have a service strip 3 feet above floor level which distributes electricity, compressed air and gas to the benches.

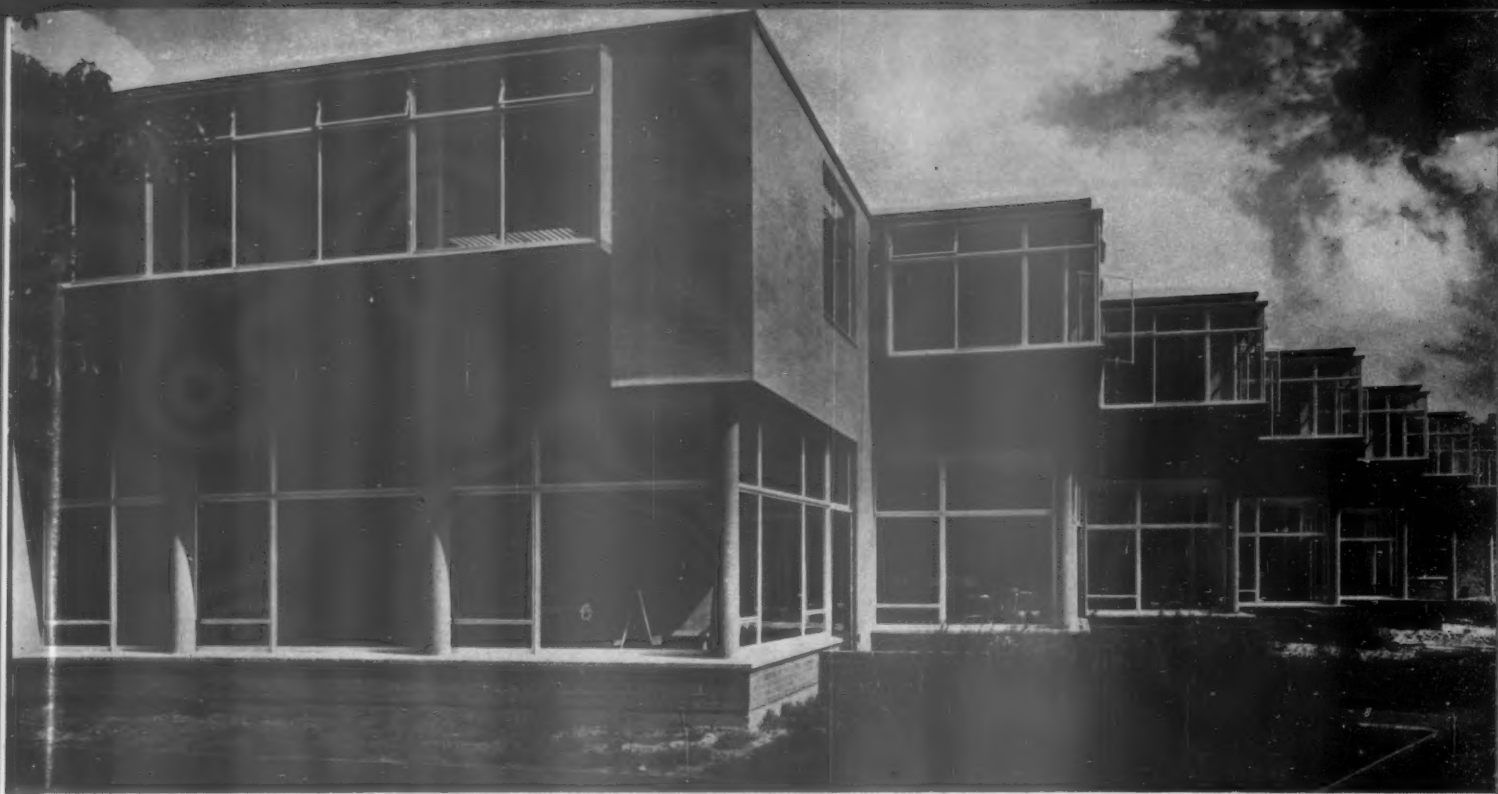


2, end of one of the laboratory wings from the west, showing the secondary staircase. 3, the ventilation plant fan chamber.



4, staircase in the main entrance hall. 5, canteen building from the south-west.





6

PRIMARY SCHOOL AT ENFIELD, MIDDLESEX

COUNTY ARCHITECT: C. G. STILLMAN
ASSISTANT ARCHITECT: J. P. KENNA

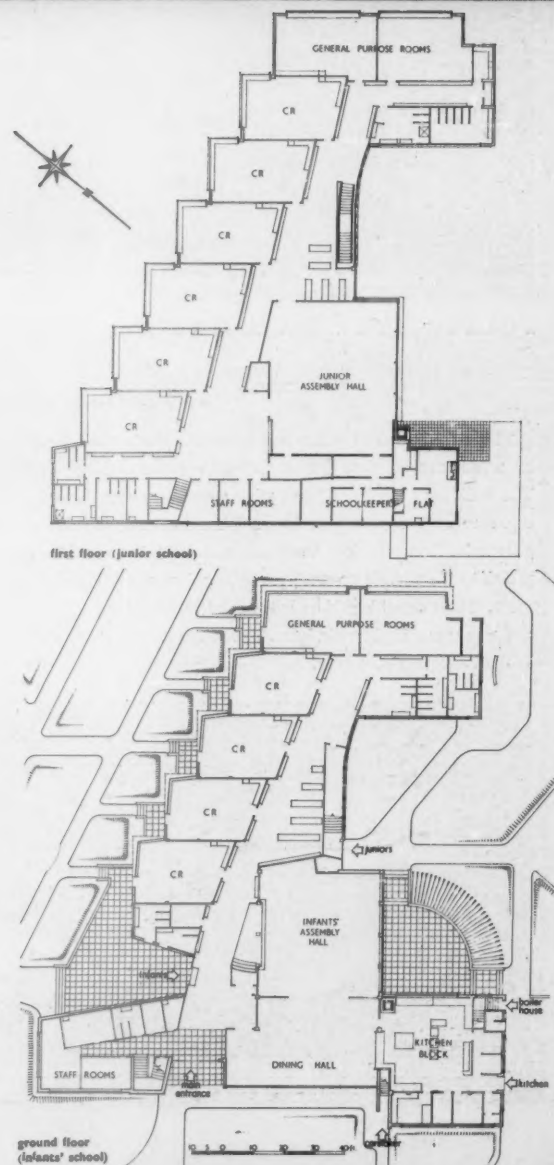
The Worcesters primary school is in Goat Lane, Forty Hill, just north of Enfield on the present periphery of wholesale suburban building. It consists of two superimposed schools, the infants' school on the ground floor, and the junior school on the first floor. The schools are separately staffed and the only shared accommodation is the dining hall. The $4\frac{1}{2}$ acre site was formerly part of a private garden and has exceptionally good trees. The two-storey classrooms face south and east, and each classroom is stepped to allow as much penetration of light and sunshine as possible. Storage space is provided by open shelving, and all classrooms have sinks. Cloak stands are in the wide corridor circulation space, so that each class has its own pegs nearby, and no separate cloakrooms are provided. There are

six infant classrooms below, eight junior classrooms above, all of 600 square feet and all with the same equipment, except that the upper rooms have top lighting. To compensate the ceiling height of the ground floor rooms was increased to 9 feet $10\frac{1}{2}$ inches (the height of the junior classrooms is 8 feet $10\frac{1}{2}$ inches) and the sill level was lowered. The ground floor has reinforced concrete construction using 8 inch circular columns; the first floor uses a light steel frame. This composite structure was the result of steel rationing at the time of building; it was originally designed for a light steel frame throughout. The roof is supported on steel joists and is of channel reinforced woodwool slabs covered with foamed slag screed and multiple felt. External finish is fairface brick rendering and vertical shiplap weatherboarding. Internally walls are plastered and painted or papered.



7

6, the staggered classrooms from the south-west. 7, the infants' and juniors' assembly halls, with staircase wall beyond.





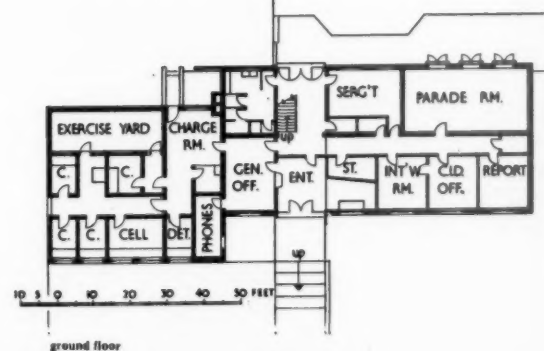
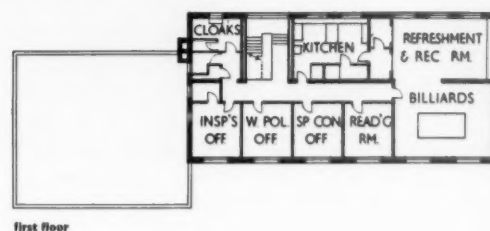
8

POLICE STATION AT OXHEY, HERTS.

COUNTY ARCHITECT: C. H. ASLIN
ARCHITECT-IN-CHARGE: J. M. PYPER

This sub-divisional police station serves the new LCC estate at Oxhey, south of Watford, on a half acre site on Oxhey Drive near the main shopping centre and railway station. The building provides offices, with separate access for public and police, a cell block with separate entrance, a parade room for lectures and inspections, recreation rooms and a garage for four vehicles. A service road down the east side of the site provides access for the police to the parade ground, garages, police and prisoners' entrances, all cut off from public view. The office block has brick load-bearing walls, precast concrete floors and roof and purpose-made timber windows. The facing bricks are light Crowborough stocks, the windows Iroko teak painted white.

8 the north facade and main entrance.
9, bar in first floor refreshment room. 10, public entrance, with counter in mahogany and sycamore.



9



10

EDITORS ONLY

[It has not been part of the policy of THE ARCHITECTURAL REVIEW to publish 'leaders' or to provide its editors with the opportunity to air their opinions, suggestions and/or grievances—other than in full-dress articles. This column is provided so that they shall henceforth have that opportunity, each note being signed to show that it is the responsibility of that particular editor and none other.]

EXCAVATIONS

The story of the temple of Mithras has brought once again into the open the unsatisfactory state of organizing excavations in Britain. London was one of the large and important cities of the Roman world. Its basilica was larger than any outside Italy. The ground which the bombs of the recent war damaged must be full of examples of private and public building and of furnishings and ornaments. The site of the temple had lain fallow for years. Dozens of other crucial sites still lie fallow. Why does nothing happen? Why was the temple not found until the new building began to be built? The reason is of course primarily finance, but also, even if to a much smaller degree, organization.

Yet Roman excavations of some sort (and also prehistoric excavations) are carried on in Britain continually, although within regrettable limits and at a regrettably slow pace. But systematic excavating of medieval architecture is almost absent. That may be the fault of too strong a tradition of classics. It is also the fault of an organization in which such excavating is no-one's job. I try to keep in touch with new evidence of medieval architecture in certain countries on the Continent. The extent of illuminating information which has literally come to light since 1945 is staggering. The *Bulletin Monumental* keeps one advised of digging in France. Germany owing to war damage has found more facts, and more unexpected facts than any other country, but Switzerland, Holland, Austria, Sweden and of course Italy all regard it as their responsibility and duty to take advantage of opportunities and excavate for medieval

evidence. The initiative is sometimes local, the execution nearly always national or provincial with State as well as church and private contributions. Details vary, but the general pattern is the same.

Now it is this pattern which does not seem to please historians and archaeologists here. It savours too much of Leviathan. But surely the alternative which offers itself is either government interference with results, or scarcely any results at all.

Mr. Kerry Downes some months ago approached me to discuss the possibilities of a dig for Nonsuch, at Cheam near Sutton in Surrey. Nonsuch was Henry VIII's pleasure palace. It was pulled down as early as about 1670. What we know of it is highly puzzling and tempting. The site is largely not built over. Excavation could be relatively easy and very cheap. It is true that the materials used were not such as to promise spectacular results in marble and freestone. Yet much of the greatest historical and aesthetic interest would be bound to come of such a dig. A fairly wide public could easily be interested in it. I went to various places to ask informal questions. None could regard itself as responsible or authorized for such a dig. They all said private funds would have to be appealed for.

That is a specially blatant case. But how many churches get a new vestry or new heating without attempts at verifying earlier plans. Yet Britain in the Early Middle Ages, especially the age of Bede, was one of the most cultured countries of Europe. Any evidence of the church, the monastery, the castle would be of value, and cumulatively it would re-shape our whole vision of Britain at that time.

Now that it has been silently established that concerts and art exhibitions are to a certain extent a concern of public finance, ought not the step to be taken at last of creating a regular service for the excavation of sites of medieval as well as Roman and prehistoric interest.

Nikolaus Pevsner

BOOKS

CITY AND HISTORY

HISTORY BUILDS THE TOWN. By Arthur Korn. Lund Humphries. 50s.

There are some books which it is easy to like, but difficult to praise because their reassuring breadth and scope, and their irrefutability, are gained by soaring too high above sordid practicalities. Such a book is

Arthur Korn's long-awaited history of the town. It sees cities as the product of vast global forces of geo-physics and sociology, rather as one might, under the right light, see football stadia as the historically necessary products of the Football Association and the Pools Promoters Association. Thus the reader is whirled through the history of the mediaeval town with only side glances at the importance of Royal Charter as a town builder which made every charter city a kind of Bastide; the statement that real capitalism did not begin until the sixteenth century seems very hard on the Lombard League, and in fact contradicts, in the cause of historical tidiness, figures given earlier about Italian bankers. Nor is anything said about the effects on town development of local pig-headedness—common-field proprietors who would not sell for building, landlords who would not have the railway across their fields—accidents which have often produced the evidence on which sweeping generalizations are based.

Yet this book persuades. It sums up those attitudes to towns which have made the greatest emotional impact—by Howard, Marx, Garnier, Mumford, Le Corbusier, etc.—and still retain their emotive power. It sums up a general attitude which is common among the students who have passed through the author's hands at the Architectural Association; an attitude which they hold, not so much because current social conditions render it historically necessary, as because he has instilled it in them with such persuasiveness and charm. To read this book is to re-live those conversations with Arthur Korn from which one went out with a warm and humane determination to do something big about the city.

J.S.C.

MEMORABLE MARKS

SEVEN DESIGNERS LOOK AT TRADE-MARK DESIGNS. Edited by Egbert Jacobson. Paul Theobald. \$8.75.

This book is written both for business men likely to commission trade marks, and for designers likely to make them. Egbert Jacobson, the Editor, starts his introduction: 'It is a universal human trait to remember images better than names. "Your face is familiar, but I can't recall your name" is such a common dilemma that it has ceased to offend. Yet our faces bear more resemblance to one another than the majority of our names. This is another way of saying that it is easier for most people to recall things seen than things heard, and that they most readily remember features which are unique, faces or in good trade marks.'

Bernard Rudofsky starts with an historical review. Herbert Bayer then analyses and classifies the various trade mark types. Alvin Lustig discusses the development of their ideas and forms, with a special reference to the trade mark's evocative qualities. Paul Rand shows how a trade mark can be



1, Chinese porcelain mark.



2, a London pin maker's trade card, 1760.



3, trade mark for a barber's shop.



4, the CBS monogram: right, as used on labels and in advertising; left, as drawn by Ben Shahn.

developed and used as an illustrative device beyond a decoration, or a letterhead, or a stamp on a product, and H. Creston Doner writes on the trade mark in product identification. He shows how one firm, 'The Libbey-Owens-Ford Glass Company of Toledo,' applies its trade mark in many adaptations to all their products, their factory, signs, etc., thereby establishing a family likeness amongst all the products. The curious thing is that all designers agree that a trade mark should be a living thing and move with the times. Provided the basic symbol is kept, they are all convinced that it is an advantage for the trade mark to appear from time to time in a new guise. This is perhaps the most important lesson to be learnt from this symposium, as industrialists and all those who are the proud possessors of a house mark, however hideous, stubbornly insist that it must not be changed in any way from the first appearance which it was given by their Victorian grandfathers, lest loss of goodwill ensue. If this book will influence only a few industrialists to be bold enough and have their trade marks brought up to date, it will have done a good job.

F. H. K. Houston

SHOWN IN SPACE

NEW DESIGN IN EXHIBITIONS. Richard P. Lohse. Erlenbach-Zürich. No price is given on book.

This is a very Swiss book . . . exquisite as a snowflake, handsome as a mountain peak, cold as a glacier, estimable as neutrality . . . and yet, in overall effect, profoundly dispiriting. Let me say at once that every architect will fall, as I did, greedily upon it. How irresistible after all is that familiar horizontal shape . . . that grey-white canvas binding . . . the magical words 'Erlenbach-Zürich.' Three languages too and nearly 500 photographs. How eagerly will the 280 pages be turned. Barcelona 1929, yes; Stockholm 1930, yes, yes; Paris 1937, of course; Zurich 1939, naturally. But then slowly comes the realization that the title is misleading. There is no 'New Design Idea' here, only infinite—almost infinitesimal—variations upon an old, well-tried and excellent formula, the three-dimensional grid used with the floating photographic plane. On page after page the thin black (or occasionally white) legs, cross-linked at intervals, march primly across the white (or occasionally black) and shiny floor, with their load of photographically enlarged laughing faces, or crystal formations. Soil Erosion or National Culture, The History of the Chair or The Future of Glass—the subject makes no difference, the treatment is the same. Of course, they're splendidly flexible. Of course, for package exhibitions, standard post-and-panel solutions are admirable. Of course, too, they are many of them very beautiful. It is always exciting also to see—or more often in this book—to see again, the splendid innovations of the greatest artists—Mies van der Rohe, Le Corbusier, Nervi or Max Bill. But the combined effect of the work of so many 'space-cadets,' when viewed apart from its glamour as beautiful pattern-making, is—let's face it—boring, and I suspect also poor showmanship. It is surely very significant

books: shown in space Three exhibition displays based on rectangular frame structures: 1, Divina Proporzione, a special exhibit at the 1951 Triennale di Milano, by Francesco Guerrini; 2, the Historic Jewellery section of the 1950 Triennale, by Franco Albini; 3, For Modern Living, Detroit, 1949, designed by Alexander Girard.

that in practically none of the 500 photographs is a visitor to be seen—too often, no doubt, because his presence would disturb the exquisitely calculated balance of the design. On page after page these delicate predatory-looking exhibitions seem to wait—in an unearthly light, in silence, and I suspect often enough in vain, for the visiting crowds.

This is exhibition design for and by exhibition designers—or, as James Thurber put it a government of the orioles by the foxes and for the foxes—and the odd thing about it is that, although it is obviously intended to be impersonal, anonymous, subsidiary to the exhibits, the visual effect is the reverse. The self-imposed rectangular discipline becomes in the end as dominating, overpowering, menacing even, as the old teasel-out confections of the between-war commercial exhibitions, and the exhibits too often take second place to their setting.

Let it not be thought that, because this country is only represented by one good but unremarkable BIF stand, there is any national sourness in these remarks. We have no reason to feel ashamed of our contribution to the History of Exhibitions, though certainly it has lain principally in other fields than these well-trimmed and weedless lawns. Let Mr. Lohse before he prepares that second edition—which will certainly be needed—visit, say, the Temperance Festival at Newcastle—three roaring clamorous miles of colour and life and sparkle, set up each year—yes, it's all packaged stuff—upon a windy moor, and see if he cannot catch just a whiff of that magic—those roses and sequins and strangeness which are the very essence of exhibitions and of showmanship, and of which, alas, no breath disturbs the pure and tranquil air of his pages.

Hugh Casson

Books Received

DESIGN FOR PRODUCTION. British Productivity Council. 3s. 6d.
THE PLANNING OF INDUSTRIAL LOCATION. Peter Self. University of London Press. 2s. 6d.
FAITH BUILDS A CHAPEL. Winifred C. Boynton. Chapman and Hall. 6s.
THE ADVENTURE OF BRITISH FURNITURE. David Joel. Ernest Benn. 63s.
LA MAISON EN BETON ARME. V. Ercoluchi. Dunod.
PENCIL TECHNIQUES IN MODERN DESIGN. Atkin, Corbellotti and Fiori. Chapman and Hall. 65s.
DECORATION AND MODERN FURNITURE. Bruce Allsopp. Rizzoli. 70s.
ARCHITECTURE FOR AMATEURS. Martin S. Briggs. W. & G. Foyle. 2s. 6d.
MUNICIPAL ENGINEERING ADMINISTRATION AND ORGANISATION. Rodney S. Offord. Contractors Record. 25s.
THE PARISH CHURCH OF ST. KENTIGERN. CROSTHWAITHE, Francis C. Eeles. Charles Thurman & Sons. 7s. 6d.
VICTORIAN ARCHITECT. J. D. Forbes. Indiana University Press. 35.00.
THE PLACE-NAMES OF OXFORDSHIRE. Margaret Gelling. Cambridge University Press. 30s.
L'ARQUITETTURA DEL MEIDIOEVO IN SARDEGNA. Raffaello Delogu. La Libreria dello Stato-Roma. 10,000 lire.
MIES VAN DER ROHE. 2nd edition. Philip Johnson. Museum of Modern Art, N.Y. \$7.50 cloth bound, \$3.50 paper cover.
CARPENTRY, JOINERY AND WOODCUTTING MACHINERY. W. E. Kelsey. Macmillan. 50s.
THE GENESIS OF MODERN BRITISH TOWN PLANNING. William Asineworth. Routledge & Kegan Paul. 21s.
BUILDING LAW ILLUSTRATED. S. G. Phillips. Spon. 21s.
ACKERMANN'S OXFORD. Notes by H. M. Colvin. Penguin Books. 5s.
BYZANTINE ART. D. Talbot Rice. Penguin Books. 3s. 6d.
SHADOW OF EROS. Adrian Bury. Macdonald & Evans. 30s.

LANDSCAPE

MINERAL WORKINGS

Because of its geological richness, no part of Britain is safe from the threat of mineral workings, and the demand for minerals is so great that their general location seldom takes account of landscape values. However, by local adjustment of siting and by sympathetic treatment of the surroundings, the smaller workings at least can be fitted unobtrusively into the view. For example, a proposed chalkpit near the Icknield way was re-sited below the sky-line and a tree-grown ridge conserved to maintain the general land-form, whilst at Polhill on the Pilgrim's Way, 1, hillocks conceal the entrance and

machinery, 2, while a beech wood forms the background to the chalk face.

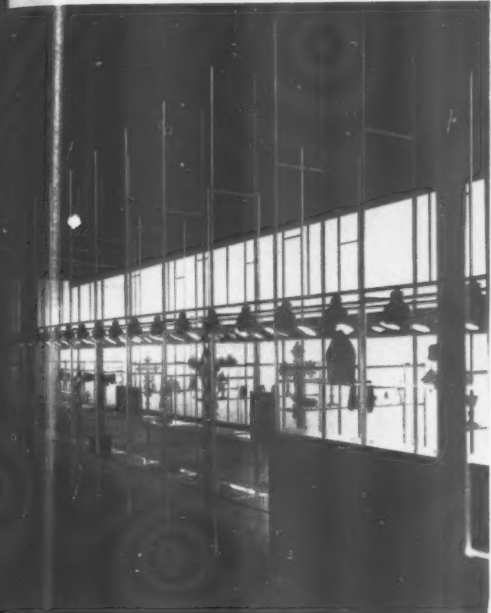
Large workings cannot usually be concealed or kept subordinate to the landscape, and although in their own way they may be magnificent, 3, their scale, noise and dirt divorce them from the peaceful countryside, making them part of industry during their working life.

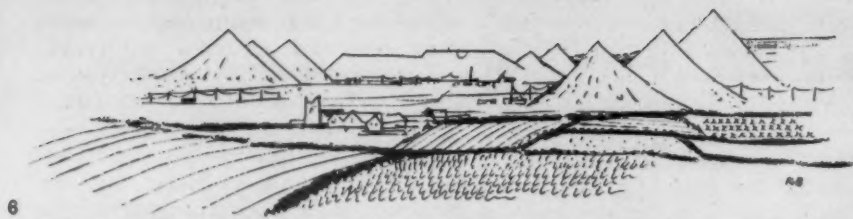
But if the right steps are taken, all abandoned workings can be brought back into the landscape in one form or another. Where it is possible to conserve or recreate the soil, the land should be returned to agriculture. With foresight and improved machinery, great areas of the Midland ironstone workings are now returned immediately to agriculture, and



where before the land was left in sterile hill and dale, 4, within three or four years have regained their full fertility.

Even old slag heaps from coal mines can be afforested by the progressive use of the right species. But while the majority of workings should be returned to the normal agricultural pattern, the exceptions can still be welcomed as opportunities for new and stimulating landscapes. The china clay dumps of Cornwall, 5, exciting in shape and colour stand up magnificently against the dark large scale background of the





moor. They only jar where there is too great an area of desolation or where their scale is brutal in relation to small scale fields and cottages, 6. Like their architectural counterparts, the great industrial buildings (see AR, Oct. 1954) they sometimes need the help of trees, 7, or water, 8, to resolve their scale.

In the urban scene, the detachment given by the raised plateau of the Wren's Nest at Dudley, and the recreational value of the Lidos of Rickmansworth and Ruislip, 9, show some of the uses to which old

workings can be put.

From the Neolithic flint mines onwards, the countryside is full of old mineral workings and is the richer for them. Nature left alone will in time absorb them all, and even the buildings of an old working, 10, may make as fine a ruin as a castle. But the process is slow and we are causing devastation far faster than Nature can repair it. If we are both to win the minerals and keep a healthy countryside, Nature must be helped in her work by a nation-wide rehabilitation of old workings



and systematic plans for the eventual restoration of each new working to its greatest potential landscape value.

Sylvia Crowe



EXHIBITIONS

PAINTING AND SCULPTURE

It was clever of the Arts Council to ask a brilliant young American art historian to organize the G. F. Watts exhibition at the Tate. We are still half ashamed of this Eminent Victorian, but we are far from displeased to hear his praises sung by someone from another country. All the same, I wish Mr. David Loshak had been a little less judicious in his selection. The modest size of the symbolical pictures shown (the charming 'Endymion,' 1, was only 20½ inches by 26 inches, and the version of 'Hope' no larger) and the excellent group of portraits



made a tasteful exhibition, but provided us with the wrong excuses for Watts. He was a failure on a vast scale and deserves to be treated as such.

Fortunately, in his Introduction and Notes to the Catalogue, Mr. Loshak helps us to find a rather nice reason for his failure. 'His chief fault,' he writes, 'was the time and place in which he lived, and within the context of nineteenth century art his place is among the giants.' I think Mr. Loshak must mean that he was a giant of Victorianism, for he is of no account in the larger context of nineteenth century art. Even so, he says of a late canvas called 'the Sower of the Systems' (an attempt to depict 'the unknown power scattering the star systems') that it is a work 'in which Boccioni or the early Kandinsky might have detected a community of enterprise,' and although, taken on its face value, this suggestion is quite unacceptable, the implication that Watts might have been more at home with the sign language of modern painting is interesting. In this connection, a remark made by Watts himself has a decidedly twentieth century ring, and really does suggest that he was ill-suited to the time and place in which he lived. 'My attempts at giving utterance and form to my ideas,' he wrote, 'are like the designs of a child who was asked by his little sister to draw God, and made a number of circular scribbles . . . and stuck his pencil through the centre, making a great void.' He was born too early to be able to take a line for a walk, and his obviously frustrated vision makes nonsense of the rhetoric of the Keeper of the Watts Museum who writes that 'in a modern democratic society, decomposed into a vast shallow of little egos, he would have been a stranded whale left to drown in thin air.'

Watts might have been as good as David Jones at putting a line round the findings of the spirit if he too had been young at the time of the cubist revolution and a witness of Picasso's magical transformation of objects. David Jones is one of the great provincials of the modern movement. He has loaded its signs for

objects with poetic allusions and Celtic sorceries, and some of the large, pale watercolours in his Arts Council Retrospective at the Tate are among the most exquisitely deviationist works of our period. His fluttering line and transparent colour embellish a surface with impeccable modernity, and at the same time transform interiors, landscapes and people into a veil for the face of the waters. His beautiful inscriptions, 2, on watercolour backgrounds, express the same vision,



and under his hand lettering becomes a spiritual substance.

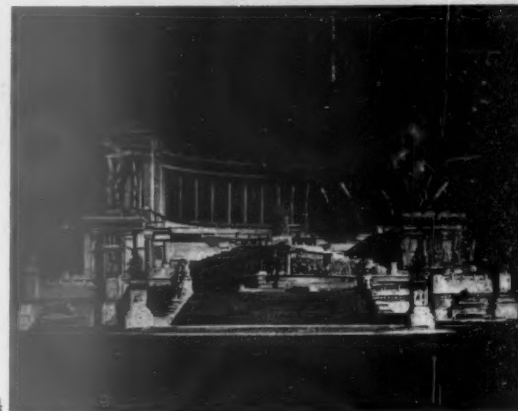
Another aspect of the Arts Council's service to living artists was reflected in the exhibition at St. James's Square of part of its collection of paintings, drawings and sculpture. This collection is used as a small reservoir for watering the stubborn soil of the provinces, but the trickle is admirably constant and includes works by young artists who have only attracted attention in the last year or two. Robert Clatworthy, for instance, is twenty-six years old, and his 'Cat,' 3, influenced by



Picasso, and not without some of the master's zest, was modelled and cast in 1954. The purchases are made by a small sub-committee of the Arts Panel, and are characterized by tasteful catholicity. There seems no sure ground for criticism, and as far as the drawings are concerned it would be difficult to find a better collection anywhere. Ardent followers of one school will of course be sorry to see official patronage extended to the others, and the well-informed will no doubt be sorry that the examples of some artists do not reflect their most recent developments. Already, a

very young artist, Martin Froy, is represented by a painting of a past period, but the purchases are made from a limited budget, and short of arranging a system of exchange which would make artists and dealers fly into a temper, there is no means of keeping pace with the progress of individual talents. The policy of including the promising young at least gives a general idea of which way the wind is blowing, and it still seems to be blowing in several directions.

One of the paintings by Aldo Pagliacci exhibited at Arthur Jeffress (Pictures) in Davies Street is deserving of special mention in the AR. It depicts an imaginary bombing of the Victor Emmanuel monument in Rome, and is called 'At Last!' 4. Pagliacci is obsessed with buildings, and



seems to be peculiarly anxious to do something to them. In his mildest moods he is content to send long shadows creeping up their walls or riddle them with bullets, but he has a way of opening the ponderous doors of palaces as if he were committing a serious offence, and for his burning churches he seems to have opened the doors partly to fan the flames and partly to give a ferocious glimpse of the red-hot furnace behind the prussian-blue coils of smoke. If the day for psycho-analytical story-telling were not past, it would be tempting to write a little essay on this subject-matter, and, reversing the title of one of Tanguy's pictures, call it 'Papa, Mama is wounded!'

Modern sculptors have not shown much interest in purely decorative sculpture, but Geoffrey Clarke's recent reliefs in black sheet-iron, with a matt surface, and a raffish ramshackle look which is almost *chic*, disclose what enchantingly decorative little fantasies can be achieved in the modern idiom. The forms in these reliefs may well be signs for people or still life, but they look like nostalgic dream-images of Victorian factories, 5. They were shown at Gimpel Fils.

The Redfern's exhibition called 'Plaisirs de l'Epoque 1900' indicated once again how brilliantly this Gallery pursues its



quest for painterly pictures with a potent content. The majority of the paintings and prints which gave this show its hypnotic overtone of time regained were by Parisian artists whose names have been forgotten here, or have never reached us before. Paul-César Helleu, Louis le Grand, Manuel Robbe, W. H. Grimshaw (presumably an Englishman) and Henri Boutet depicted elegant women, with ardour and finesse, but the artist who painted the loveliest picture in the exhibition, a study of a girl on a high balcony, watching the street below, 6, remains 'inconnu.' I like to think that this girl had the fire of Daudet's Sappho and the simplicity of Charles-Louis



Philippe's Berthe, and it was, I suppose, the sense of a grand reunion of gay and lovely women long since gone from our midst that put the show outside the realm of criticism and brought to mind Alberti's blunt statement that painting has a divine power because it makes the dead almost alive.

Robert Melville.

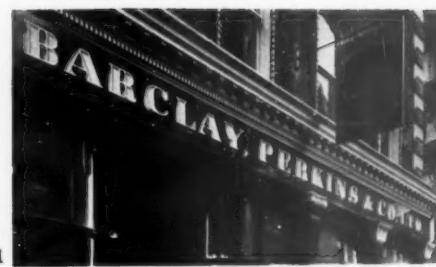
LETTERING

THE CHAMPION

Not the least of the virtues of the newly refitted Champion pub (AR, February 1955, pp. 135-140) is the admirable way in which its lettering and signwriting conform to the architecture and the functional programme they have to fulfil. Though there was once an excellent tradition of public-house lettering, robustly ornamental, festive yet legible, 4, it was starved to death amid the half-timbered genteelisms of the twenties and thirties, and is now beyond revival. In lettering, as in all else, the true spirit and atmosphere of the public-house tradition cannot be resurrected, but must be created anew.

True re-creation involves a return to first principles, and the method by which John and Sylvia Read, the architects of the *Champion*, and their signwriters and glass-cutters arrived at the letter-forms eventually used is probably a capsule version of the historical process which evolved the original repertoire of public-house alphabets. Their basic principles were a close study of the space in which the lettering was to be displayed, and the amount of wordage involved in transmitting the particular message which was to be fitted into this space. Thus given the character of the type required, the height and number of letters to be used, they selected a basic letter-form from types currently in use in good typography and display today, and considered how it could be adapted and diversified to fulfil its particular function.

Thus, on the fascia, 1, the restored cornice in all its elaboration clearly required a letter-form which would not appear anæmic by contrast, standing about 8 inches high, a comfortable proportion of the fascia's depth, and highly legible because its location is one of the most important display spaces on this type of façade. A fat-face of Ultra Bodoni (Falstaff) extraction gave the proportion and power required, and was developed into a perspective shaded inline letter to



give the required clarity and bold upstand for its purpose. The inline, which frames only the face of the letter, is in gold, and is treated as a slight upstand itself to add force to the modelling. The actual form of the perspective and of the cast shadow are not merely copied from some handy early-Victorian example, but were projected by imagining the letter-form as a three-dimensional solid, and preparing a rendered perspective of it, with true sciagraphy as from two light-sources—one notices at once the subtle enrichment, without distortion of letter-form, which this understanding use of the double shadow gives.

Where the fascia is turned around the corner of the building by means of the recessed panel over the door a problem of a different order is presented, for the curved surface offers a rather uncertain field on which to deploy lettering, and something in the nature of a closed composition is required. Rather than use a painted frame to contain the lettering—a somewhat laboured solution—the use of a current type-face which naturally generates engraver's flourishes, such as Bank Script, 2, facilitates the creation

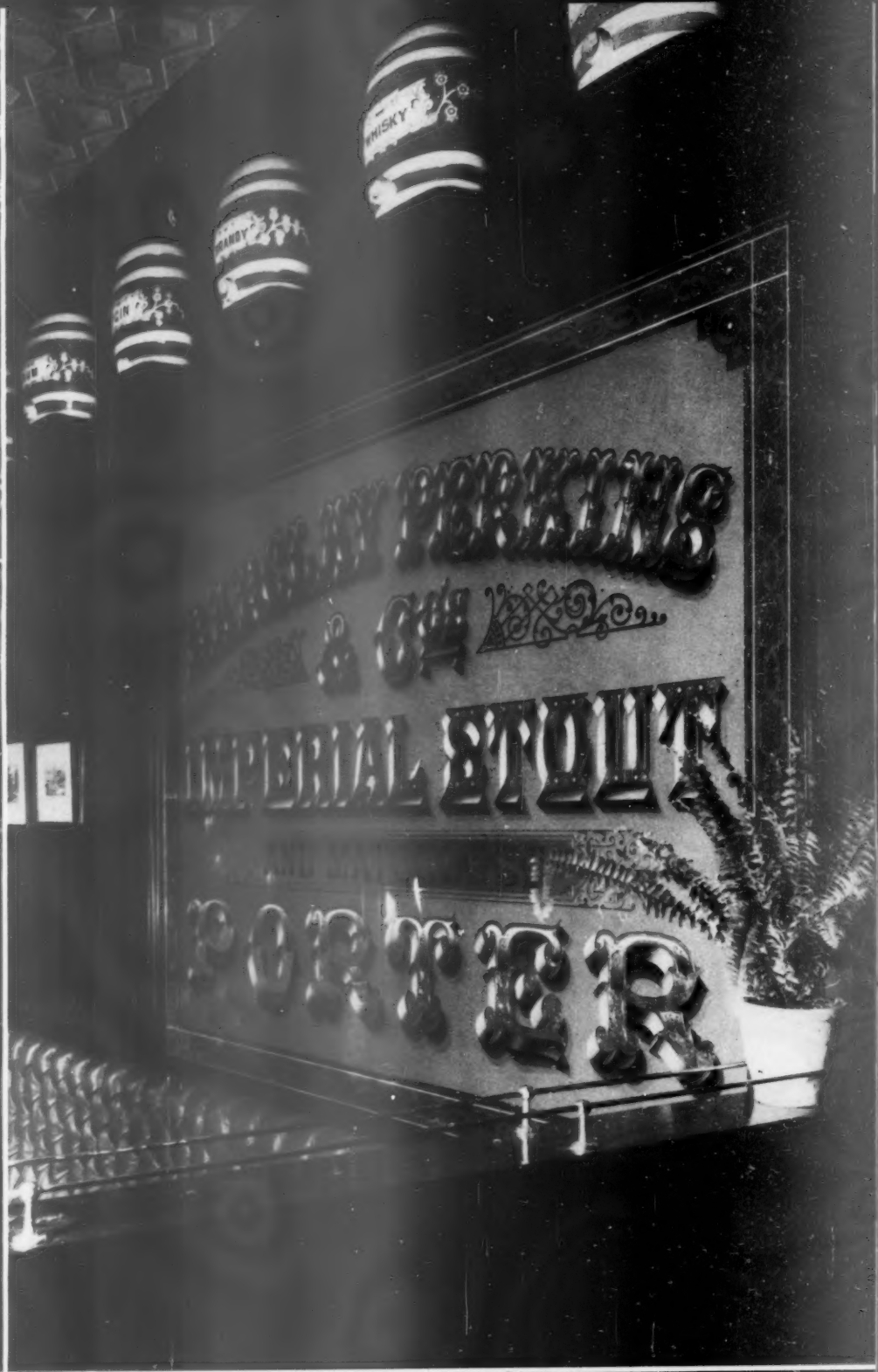


of a kind of cartouche which is a self-contained unit—and also provides a satisfactory junction between the horizontal emphasis of the lettered fascia, and the powerful downward tendency of the name painted in big incised characters, 3, on the corner panel above.*

In the interior, lettering serves to keep

* This lettering was the subject of a town-planning dispute; see AR, February 1955, page 140.

lettering: the champion Examples of three different techniques of signwriting used in the *Champion* are shown opposite 3, above left, the lettering on the corner panel painted to appear incised. 5, below, Egyptian lettering on the glass panel between public bar and saloon bar, and 4, above right, an original nineteenth century painted glass in the saloon bar.



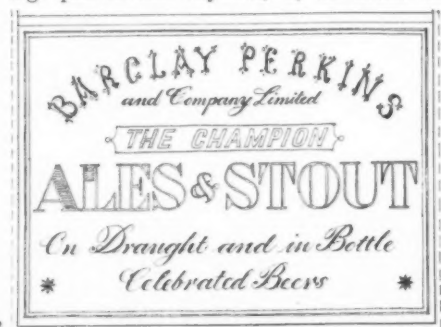


6 the name of the brewer and his products before the customer's eye not only in the form of price-lists but also in boldly placed displays. Along the miniature fascia of the bar-canopy, brand names are exhibited in labels which employ a wide repertoire of types—Doric, Falstaff, Thorowgood, etc.—suitably enriched with incision or recessed-panel treatment, 6, while on the glass panel over the screen between public and saloon bars, a bold Egyptian is imaginatively used to make a double-image of the brewer's name, 5.

But it is precisely in the question of lettering on glass, which is the touchstone of any attempt to re-create the tradition, that the designer meets the gravest difficulties arising from that tradition's decay. Craftsmen who command the difficult techniques of brilliant-cutting, back-gilding and etching seem to suffer an atrophy of visual control and formal imagination as a result of the brewing trade's thirty year neglect of good lettering, and in the execution of the obscured panels of the windows, 7, the architects



7 had to make their requirements precise in the smallest detail, to the extent of drawing out alphabets full-size, and making quarter-size layouts, 8, in order to

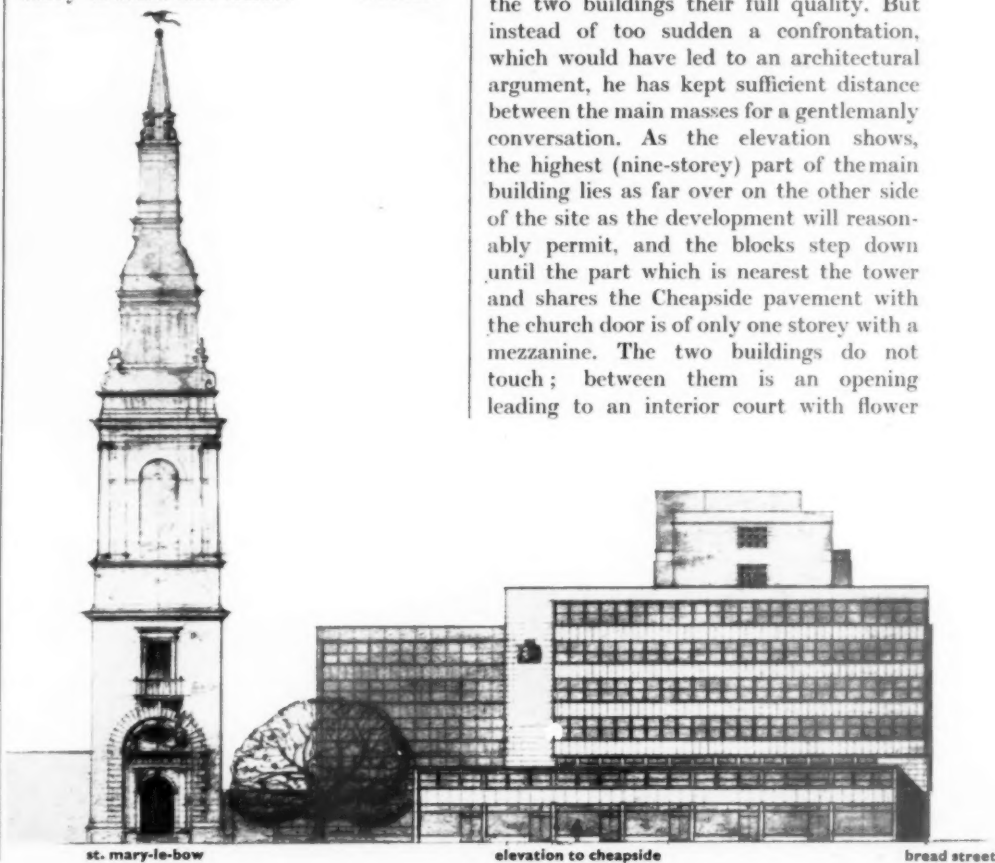


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avoid what would appear to many people the most obvious errors of taste.

This was a situation calling for sympathy and tact, for men versed in such complex techniques cannot merely be ordered to do this or do that, and would not be able to give of their best even if they could be persuaded to accept such a position. That the outcome should be so successful is not only a tribute to John and Sylvia Read for their diligence and understanding in suggesting, correcting and persuading, but is also a clear indication that the glass-engraving and sign-writing trades are fully capable of producing work of a far higher standard than usual, if it is intelligently asked of them—the lesson of the *Champion* is that the decay of pub lettering is to be laid at other feet than those of the tradesmen, and it is to be hoped that both brewers and architects are now ready to learn that lesson.

C. Forehoe



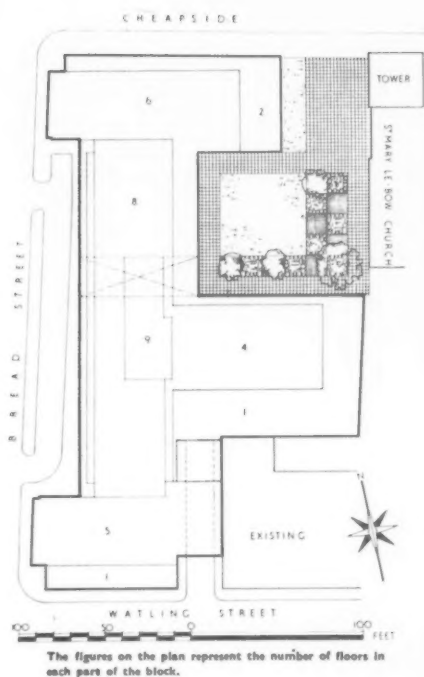
CRITICISM

CITY REPLANNING

While there continue to be so few signs of any large rebuilding in the City of London which seems aware of the problems involved in the juxtaposing of buildings vastly different in age and scale, it is a pleasure to welcome small-scale private developments which respond to the peculiar responsibilities of their situation in an imaginative and sensitive manner.

Praise is particularly due to the small development projected for the area between Bread Street and St. Mary-le-Bow, where the architect Frank Scarlett has accepted the challenge of a Wren spire alongside his site in a way which should be a lesson to those who have declined the challenge of St. Paul's.

Instead of a laborious attempt to 'keep in keeping' by taking over Wren's vocabulary of detailing, which could only have been devalued by inflation when inappropriately applied to a larger building with a different structure, the architect has decided to give the differences between the two buildings their full quality. But instead of too sudden a confrontation, which would have led to an architectural argument, he has kept sufficient distance between the main masses for a gentlemanly conversation. As the elevation shows, the highest (nine-storey) part of the main building lies as far over on the other side of the site as the development will reasonably permit, and the blocks step down until the part which is nearest the tower and shares the Cheapside pavement with the church door is of only one storey with a mezzanine. The two buildings do not touch; between them is an opening leading to an interior court with flower



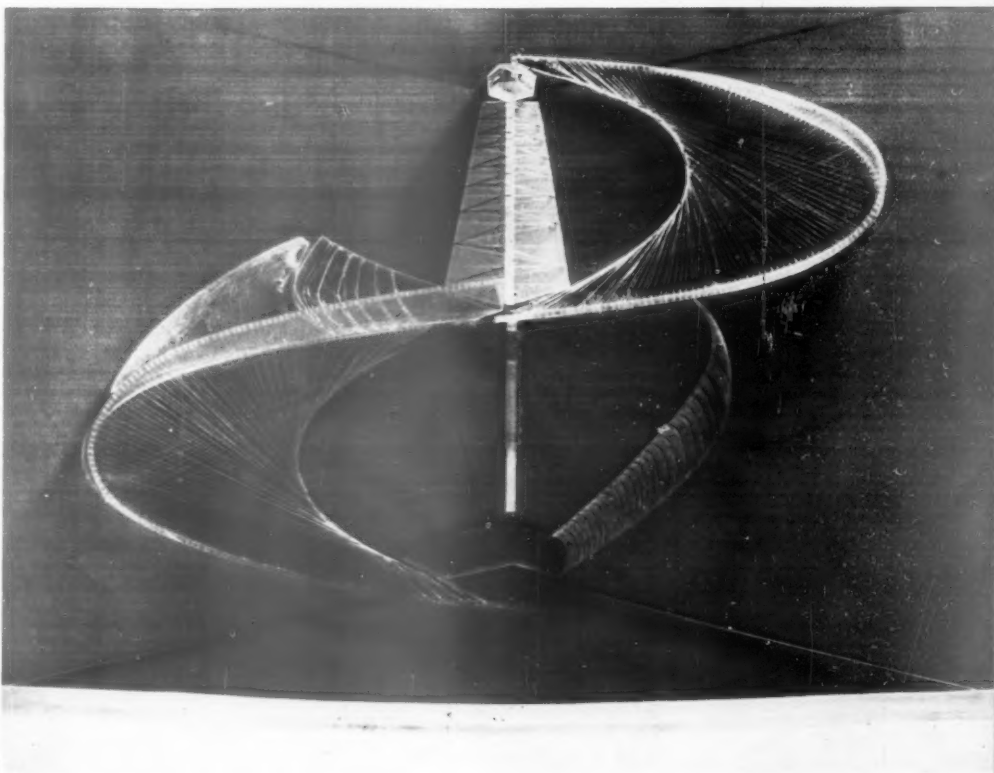
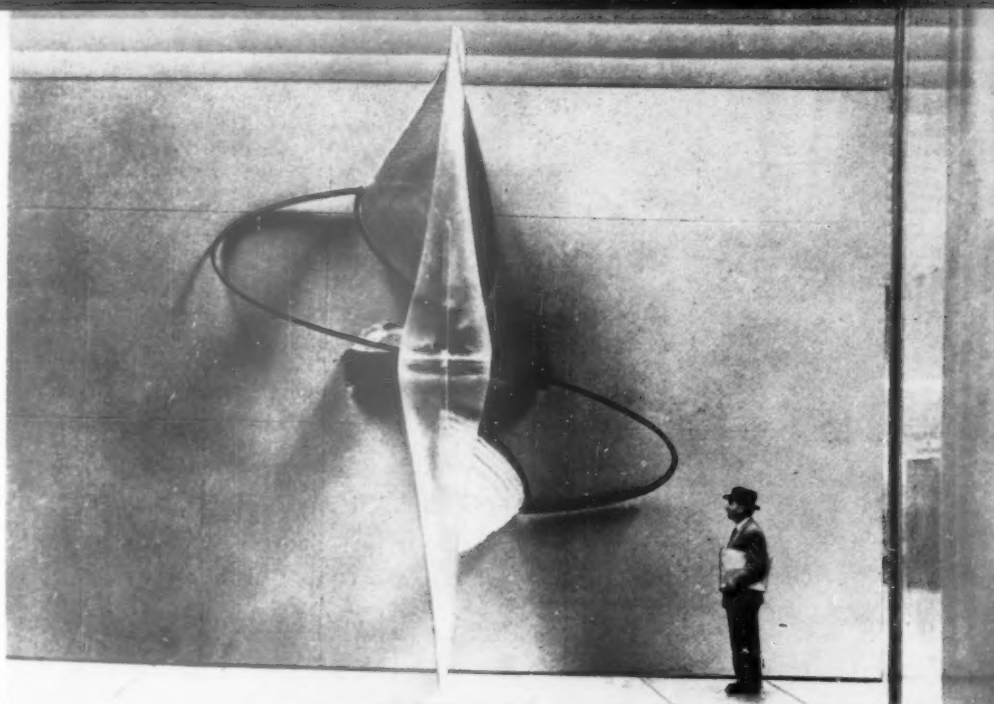
beds and grass, from which there is another outlet by an underpass into Bread Street. Thus the development of this area will add another link to that pedestrian network which has always been a feature of City townscape, as well as setting a standard of visual sensibility which other developers might profitably try to emulate.

Miles Coslany

SCULPTURE

TWO WORKS BY NAUM GABO

Even while some critics remain in doubt as to the nature and possibilities of public sculpture in architectural settings, practical research in creating sculpture to be seen in particular places is continuing here and there, and the eminent constructivist Naum Gabo has recently been involved in two such projects, one abortive, the other carried to a successful conclusion. For the two entrances to the Esso offices in Rockefeller Centre, New York, he designed two constructions which were intended to be, in a very immediate sense, 'space modulators.' Anyone coming into the building by these two entrances is faced directly by the blank back wall of an elevator stack, which creates a shallow lobby at right angles to the line of entry. For the lobby



on the 51st Street side Gabo projected a construction whose swinging curves should direct attention outwards to the side walls, and at the same time provide a focus of attention in the centre of the lobby—the success of this paradoxical programme is seen in 1. For the 52nd Street lobby the problem was more acute, because the space is even shallower and here, 2, an effect of illusionistic perspective was proposed as well.

For a variety of reasons the whole of this project has had to be abandoned, but another scheme, in the Baltimore Museum of Art, has been brought to

fruition. Here he was asked to design a suspended construction for the stairwell of a recently-added wing, and it was suggested that it should take the form of a mobile. This suggestion was resisted by the sculptor on the grounds that the attractions of a moving sculpture might constitute a traffic hazard on a staircase, whereas a work which could only be fully appreciated by a moving spectator would reduce congestion and promote circulation. Looking up from the foot of the stairs, the moving spectator sees the construction of metals and plastic as a single, complex, but apparently compact system of inter-

sculpture: works by naum gabo

Three views of the suspended construction in the Baltimore Museum of Art are shown opposite 3, from the bottom of the stairwell; 4, halfway up, and 5, from the upper landing.

when abstracted from its site and the experience of getting there: on the sea wall, a mile from the nearest road, three from Bradwell village which is itself at the very end of Essex. Any intending visitor has to make a pilgrimage and no press-button tour will take him; it is still an individual matter, and the last mile is still a rough walk. But what is the use of this eastward journey, with the mounting tension of knowing that the North Sea, still invisible, is beyond the next field, when the building finally comes into view, 2, accompanied by what seems to be a parody—same proportions, same roof pitch, one-third of the height and twice as strident. Contrast this with its old state, 1, ploughland licking round the west wall and a rickety weatherboarded barn for company. Then, the building was seen clear cut, with its integrity unimpaired; now it looks like a dilution of the front at Southend.

The structure was built about two years ago as a vestry; without knowledge of the circumstances one must accept the need for it without question. But something utterly simple was needed, something that would have stated the elemental fact of shelter as directly as the barn used to. Ironically, a New Brutalist building might have done just that. The landscape is Brutalist already; its elements—sky, sea and fields, mutually indifferent—are perennially 'as found,' and the cold light intensifies intrinsic value but shows up hypocrisy instantly. However, the more the English plan, and the more tenderly they feel towards ancient monuments, the faster they seem to put the wrong thing in the wrong place with the best of intentions.

Ian Nairn

OUTRAGE

VESTRY AT BRADWELL-ON-SEA

In preserving ancient buildings it is little use respecting the letter if you kill the spirit. Any antiquary would respect every stone of St. Peter's chapel, Bradwell-on-Sea, a seventh century church unearthed from centuries of use as a farm building. It was restored for worship between the wars with great care—yet the same authorities have erected the building next to it that has broken its existence as a spiritual experience.

The issue is particularly clear cut here, because St. Peter's chapel is very little



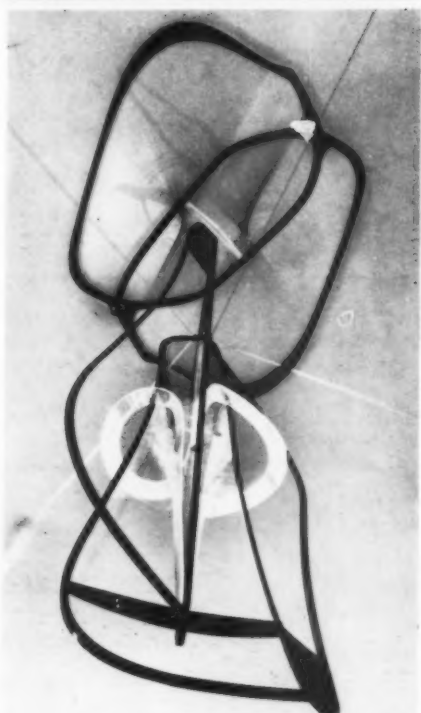
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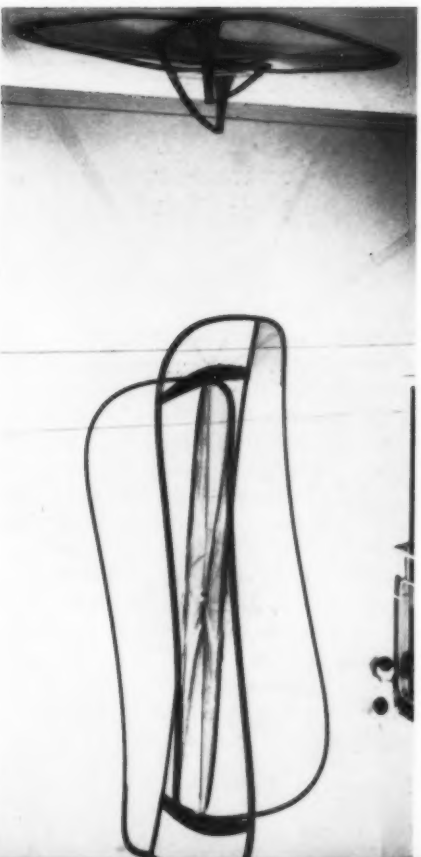
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SKILL

A MONTHLY REVIEW

OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

- 1 interiors
- 2 design review
- 3 techniques
- 4 the industry

1, a chair by Ernest Race,
originally designed as a deck
chair for the 'Orsova'.

U.K. FURNITURE

1954-55

2 DESIGN REVIEW

by Neville Ward and Frank Austin

The Furniture Exhibition has revealed a marked increase in the number of firms offering furniture labelled 'Contemporary'; it is now anybody's business and good and bad alike stand under its banner. What is important when men 'speak in words that other men have coined'* is that they should speak them with understanding and sympathy. The rapid acceptance of quite revolutionary standards in the field of furniture (thirty years is a short time in such matters) evolves from many sources; a war-time compulsion; an encouraging press, gentle but firm persuasion

* J. M. Richards, *In Defence of the Cliché*, AR, August, 1953.

from bodies such as The Council of Industrial Design; impetus from a few manufacturers who not only made but also publicized the new furniture. It would be sad indeed if the decay were as rapid as the growth for no other reason than an excess of success.

Whereas after the war interest in furniture design seemed to be centred on small tables, trolleys, magazine stands and whatnots, the most interesting things available today are among larger pieces, sets and even complete manufacturers' ranges. One of the first firms to market such a range, and this so early as to be an exception to the foregoing generalization, was Ernest Race Ltd. **1**, an interesting chair by Ernest Race, designed originally as a deck chair for the 'Orsova' obviously has a number of uses, and can be folded flat when not required; the price, including purchase tax, without cushions, is £13 9s. 10d. and from £16 13s. 6d. with cushions.

2, also designed by Ernest Race, provides a generous comfort whilst being compact in form and pleasingly light in weight; DM1 Dormouse chair, prices from £22 6s. 7d. retail, plus 17s. 9d. purchase tax, upwards.

3, another piece from the same designer is intended as a unit for long rows; prices from £16 1s. upwards by Ernest Race Ltd. **4**, Messrs. Parker-Knoll have revived a pre-war piece of a very useful type; the design, No. 743 'Denham,' has been simplified from its original form, and prices are from £47 10s. upwards including purchase tax.

5, H. K. Furniture, who were also among the first to produce a full and carefully-balanced range of contemporary furniture, are responsible for a new settee called Caramba, prices from £50 5s. upwards.

6, another sensible chair produced by Ian Henderson, price £27 15s.

7, Robin Day has designed two very pleasing small chairs for S. Hille; the first, upholstered over a formed ply base on beech legs, costs £20 2s. upwards.

8, the second is a low-priced stacking chair, at £2 10s., in wood or plastic veneer.

9, a dining set in the lower price bracket is made by W. G. Evans from designs by Peter Hayward, the prices, including purchase tax, are approximately: sideboard, £28 5s.; table, £12 2s.; chair, £4 17s. 6d.; and trolley, £6.

10, Kandy Ltd. have produced a dining table designed by P. K. Bridson, which costs only £11 15s., and has a walnut veneered top and beech under-framing.

11, a small timber-framed chair with latex foam rubber seat and back. Manufactured

by Morris of Glasgow, costing £14.

12, the double version of the same chair, price £23 6s. 8d.

13, a small chair in mahogany with cane seat and back designed by Ward and Austin for E. Atkins Ltd. costs £6 1s. 6d., and is available with upholstered seat and back at £5 8s. 6d.; beech versions are available from £5 1s. 6d.

14, an elegant chair, Albemarle, was designed by Robin Day for S. Hille, made in mahogany with latex foam seat and back; the handling of the timber is particularly pleasing and the making is very well carried out; price £15 10s. upwards.

15, another elegant small chair is designed by Terence Conran, No. C. 2, made in beech with cane seat, it costs £5 17s. including purchase tax, and is obtainable from Conran Furniture.

16, a very pleasing dining set has been designed by Ronald Ingles for Heal & Son. The sycamore table, which is 3 ft. 6 in. in diameter, costs £11 5s., and the chairs in the same wood £3 15s. each.

17, dining room furniture by Nigel Walters for Heal & Son; it is veneered in teak and beech with solid beech underframing and chairs; the sideboard with four drawers, top drawer fitted for cutlery, cupboard with fall front, costs £65, the circular dining table, 4 ft. in diameter, £19, and the dining chairs with foam rubber upholstery £6 5s.

18, traditional furniture designed for Gordon Russell Ltd.; the sideboard in mahogany and yew is 5 ft. long and costs £79, this and the extending table are designed by Frank Whitton; the table costs £57 5s. The chairs are designed by W. H. Russell and cost £7 13s. each for the chairs without arms in mahogany and £9 5s. each for the chairs with arms. (These prices are approximate.)

19, Robert Heritage has designed a table and sideboard for G. W. Evans, drawers having an interesting router cut decoration; the cost is £43 17s. 2d. for a 4 ft. 6 in. sideboard, and the table illustrated with it costs £25 9s., the 'Oyster' chairs in beech cost £7 11s. 9d. each.

20, a second version of the pieces designed by Mr. Heritage; the sideboard with the printed decoration costs £61 7s. 9d., dining





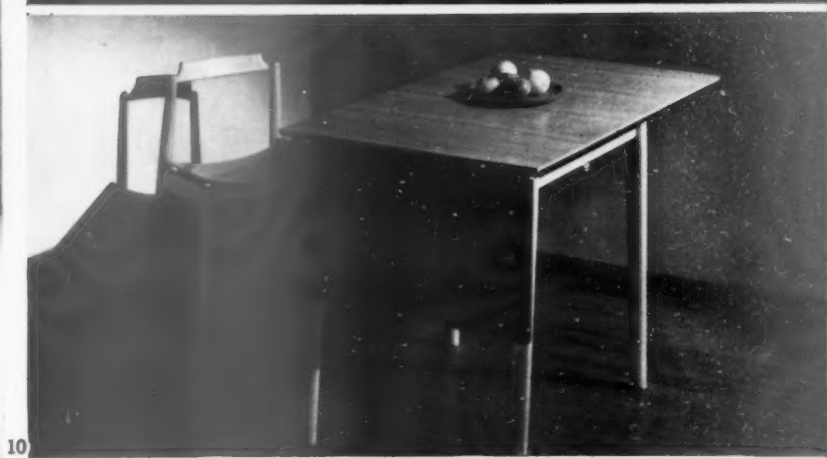
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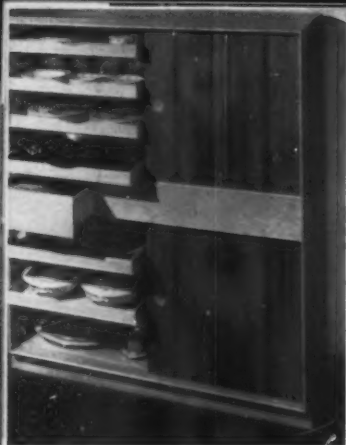


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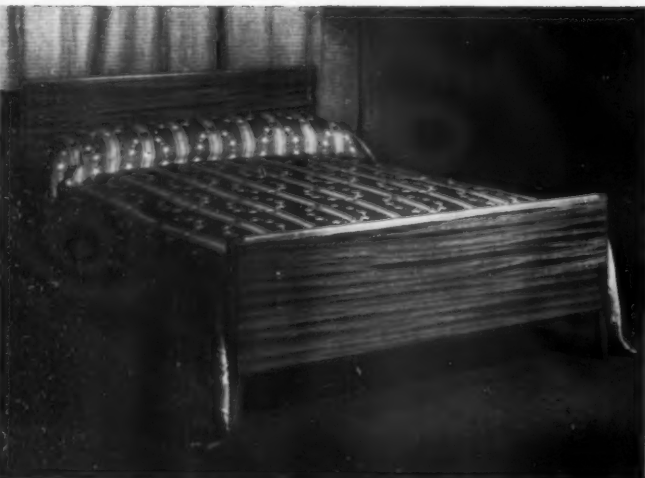
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table £27 4s. 6d. In both the sideboards by this designer one cannot help feeling that the grips to the drawers detract from the other decoration.

21, very carefully planned storage for china, glass and cutlery is provided in Kandya's cupboard, designed by Frank Guile, price £39 10s.

22, another very good piece by the same designers also in mahogany with brass handles, 4 ft. by 2 ft., costs £26 1s. 3d., 4 ft. 6 in. by 2 ft. 6 in. costs £27 11s. 3d., from L. M. Furniture Ltd.

23, Robin Day's small pedestal desk made by Hille (Hilleplan Junior Desk) in mahogany with black stove-enamelled frame and linoleum top costs £26 15s.

24, two units, making a small bureau, from a range designed by Jacques Groag and produced by The Loughborough Cabinet Manufacturing Co.; these cost £14 14s. for the three-drawer unit in mahogany and £15 15s. in walnut; £14 7s. for the secretaire unit in mahogany, £15 13s. 3d. in walnut.

25, an excellent bureau designed by T. M. Lupton and L. J. Morton is made in mahogany with brass handles and escutcheons; the pigeon holes are removable for cleaning, price £30 13s. including purchase tax, from L. M. Furniture Ltd.

26, a simple bedroom suite designed by Christopher Heal for Heal & Son; the large wardrobe costs £36, the small wardrobe £31, the dressing table £37 and the stool £3.

27, the bedstead from the same suite costs £10 11s. 9d. in mahogany.

28, The Loughborough Cabinet Manufacturing Co. have recently produced two sets of bedroom furniture; the first, a suite designed by Jacques Groag, is shown in mahogany and is available in other timbers, the dressing table and stool shown here cost £24 10s. and £6 6s. 3d. respectively in mahogany.

29, a group from the second range of bedroom or bed-sitting-room units, comprising fourteen pieces, designed by Ward and Austin; those illustrated are a 4 ft. 2 in. three-door wardrobe price £34 3s., 2 ft. 10½ in. two-door wardrobe price £27, a four-drawer chest unit price £22 16s., a cupboard unit price £19 5s. 3d. and a shelf unit price £9 15s. 9d.; all these prices are for mahogany, and the units are also obtainable in walnut.

30, one of three dressing tables in the range, price in mahogany £26 9s.

31, a typical unit, from the above range, [continued on page 209]

the dressing chest with fitted drawer; the mirror folds down to provide a writing surface in leather and there are pigeon holes behind it; the price in mahogany is £29 0s. 6d.—an alternative version without the secretaire drawer, but with a plain drawer with sliding tray for studs, collars and ties costs £22 16s.

32, the small bedroom designed by Paul Bridson for Kandya Ltd. is in solid African walnut with light veneered fronts; the prices including purchase tax are: dressing table £24 10s., chest £19 19s., bedstead £10 15s., and wardrobe £24 19s. 6d.

Suppliers:

Ernest Race Ltd., 22, Union Road, Clapham, London, S.W.1. Parker-Knoll Ltd., Temple End, High Wycombe, Bucks. H. K. Furniture Ltd., Andover Gardens, Hornsey Road, London, N.7. Goodall Bros. Ltd., Mendy Street, High Wycombe, Bucks. Ian Henderson Ltd., 184, Sloane Street, London, S.W.1. S. Hille & Co., Ltd., 134A, St. Albans Road, Watford, Herts (London Office: 39/40, Albemarle Street, W.1). E. Atkins, Ltd., Aircraft Works, Ealing Road, Alperton, Wembley, Middlesex. Conran Furniture, 6, Cadogan Lane, Port Street, London, S.W.1. Kandya Ltd., Silverdale Road, Hayes, Middlesex. W. G. Evans & Sons, Sunbeam Road, Park Royal, London, N.W.10. Heal & Son Ltd., 193-199, Tottenham Court Road, London, W.1. G. W. Evans Ltd., Old Ford Road, Bow, London, E.3. Gordon Russell Ltd., Broadway, Wores. L. M. Furniture Ltd., St. Johns Road, Wallingford, Berks. The Loughborough Cabinet Manufacturing Co., Granby Street, Loughborough, Leics.



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DESIGNERS IN THE MAKING

Diana Rowntree

*To design for Industry is now a recognized profession. The orthodox educational routes for the would-be designer will take him to complete his studies either to the LCC's Central School of Arts and Crafts or to the Royal College of Art, now a self-governing National College. The following article is a study of the teaching methods employed in the Industrial departments of these two schools.**

In the case of the Royal College of Art the term College is not just a fancy name. Its first object is stated to be 'to provide advanced teaching and to conduct research in the Fine Arts and in the principles of Art and Design in relation to commercial processes.' Learning is viewed as a by-product of research and production. The College is in a position to study the existing relationship between the Fine Arts, Design, and Industry, and to foster a right relationship. This intention is manifest in three ways. First by the existence of Faculties of Fine Art, Industrial Art, Graphic Design, Interior Design and Fashion Design side by side. Secondly the Professors conduct their own designer's practices from the College premises. Only lack of space restricts this arrangement from applying to other members of the staff, and space is often found for them to engage on particular

* On behalf of THE ARCHITECTURAL REVIEW I should like to thank both establishments for the great courtesy and patience accorded me. In examining at a given moment a large school with a long history it is not possible always to give credit where it is due.

projects. Thirdly the College is in a position to take on paid jobs for Industry. Some are done by staff and students in collaboration, others by students under normal tutorial supervision.

The RCA as a National College is concerned with the training of full-time artists and designers. The Central School as a Regional College has the dual responsibility of offering advanced training in these subjects to full-time students at the same time as providing apprentices with their part-time training. As some of these come on a day-release scheme and others for evening classes, to plan the time-table for such a College is a formidable task in itself, though perhaps the least of the formidable tasks ably tackled by the Principal, Mr. Johnstone.

Most of the RCA students are doing a full-time three-year course. It is normal for them to have completed three years in an Art School, and if they wished to take the National Diploma in Design, to have taken it before arriving at the College. The RCA Professors can if

they wish see the NDD portfolios exhibited when they are selecting their students.

The Central School takes in its full-time students after a minimum of only two years in an Art School. So that those who are taking their NDD will have to spend most of their first year on this work. The school is thus in the trying position of having to train students in a direction in which it does not necessarily want them to go, at the same time as trying to lay the foundations for its own course. It does, however, catch them earlier in their development. There is controversy upon this point. Those Professors who feel early Art School training is something that has to be undone later would prefer to split a student's training differently, and have only two years at a local School and four years at their advanced School. On the other hand this arrangement skims off the senior students from the local Art Schools and so greatly lessens their value.

An enormous number of part-time students attend the Central School,

both for day and evening classes. At first glance all the benefit of this arrangement seems to be to the part-timers. One tiresome result for the full-timers is that their working day is rudely broken at 4.0 p.m. According to statute they must then vacate the studios until 6.0 p.m. unless there is a member of staff present, which there is unlikely to be, as no staff are paid for these hours. In practice the presence of the apprentices serves to anchor the design students firmly to reality and offers them a challenge.

Both the RCA and the Central School acknowledge the principle that design must be taught part time by practising artists and designers. Because the Professors have their offices on the premises the College students will be more closely in touch with the daily office routine of a practising designer, and can observe the relationship between what he says and what he does. Both schools, however, aim high in appointing their staff, preferring minds of quality to designers highly skilled in a narrow field. The Central School does in fact appoint some artists to departments not in their own field.

Both Schools are in agreement on the importance of drawing from nature, using the term in its widest sense. The Life Rooms in their Fine Art Departments are available to Industrial students. The RCA is fortunate in having a conservatory in the Textile School where students from that and other departments can draw plants. And the whole of the very scattered layout of the College is within walking distance of the Victoria and Albert Museum. The Central School students also visit Museums, undeterred by distance.

Flower drawing, for which they bring their own plants, is also insisted upon. There is a difference of vocabulary here. The College tends to 'encourage' activities. At the Central School the word 'teach' is used without shame. In fact I fancied it was used to me provocatively. This may indicate the actual importance of the place taken by Fine Art in the minds of the staff of the Industrial schools. No one would deny that you can teach diamond setting or the use of the lathe. It is in the Fine Arts that one tends to avoid the word because of the difficulty of defining what it is that one teaches. The same could be said to apply to the teaching of the liberal Arts in the older Universities.

The tutorial system is not the only aspect of University life that is burgeoning at South Kensington. Mr. Darwin has gone some way towards achieving for his staff a proper status, and for the College an independence in academic matters that it is hoped will have far-reaching effects.

As well as Life Drawing, flower painting, museum study and modelling the Central School has introduced another branch of Art, whether Fine or not I do not know. This subject is taught in all departments by different people. Usually it goes by name of Basic Design, though in the Engineering Department it is called Theory of Design. This sounds like a welcome short cut to the end of the whole business. Why undergo the complicated exercises demanded of these students, why trapes from Life Room to Joinery Shop, from Museums to Fashion Shows, and back to the drawing board again, if there is a theory underlying the whole business which can be imparted as such? What indeed is this theory? In one department I was shown a series of rectangular boards on which the students had mounted arrangements of wire, string and cork. In another, minute squares of paper represented exercises in various abstract shapes, rather like a lot of sub-Nicholson's. Is Basic Design in fact Abstract Art? If so it is very surprising that there should be any call to teach it. It seems incredible that anyone who has spent the last eighteen years on this planet, and two of them in an Art School—which presumably subscribed to some current periodicals—should be unfamiliar with the general idea of abstract Art, and of the possibilities of designing in string, cork, wire, plasticine and old newspapers. How for instance did they come to miss the early years in a Primary School? The Staff of the Central School state that this is in fact the case of some of their students. One cannot help wondering whether persons so insensitive to fashions in Art, and Art as it is practised, are indeed suitable persons to be training as designers of anything visual? This however is less than half the story. In the case of many students it is necessary to get away from the idea that Art is merely drawing with a pencil. In the case of Engineering Design students who have not come up against art at all, or attended an Art School, it is essential to stress the visual element in their work in a most forceful way. They must be introduced to the necessity to design for the eye, and to understand the demarcation between functional and visual requirements, before they proceed to the complicated exercise of fusing the two. This is still not the main purpose of such teaching. I would say that its purpose is to stimulate creative curiosity. A new student entering this teeming and complex institution sees much to

admire, much to perplex and much to learn. These simple exercises in form and colour may bring it home to him that what is important is his own creative will.

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The activities that come under the heading of Industrial Design are Pottery, Silversmithing, Jewellery Design, Textiles and the Design of all objects in wood, metals and plastics. The two schools align them rather differently.

CENTRAL SCHOOL	RCA
Interior Design and Furniture.	Furniture, Engineering Design.
Engineering Design.	
Textiles.	Textiles.
Pottery.	Ceramics.
Silversmithing and Jewellery.	Silversmithing and Jewellery.
	Industrial Glass.

interior design and furniture

At the RCA, Interior Design is a School on its own. The Interior Designer is considered to be in the same position as an architect; his problems being to organize spaces and assemble components. At the Central School, Interior Design is combined in one department with Furniture Design. All the students do the same first-year course and then take their choice. Here is a striking difference of aim. The Central School plants the Interior Designers' feet firmly in the realities of joinery, while the RCA emphasizes the formidable breadth of their responsibilities. This is done, however, in a most down to earth manner. The trainees for this sophisticated activity have as their first programme the design of a Primitive Hut. Imagining themselves to be castaways on a tropical island, they have to plan the construction of a shelter from the materials around them. They are then initiated into the architectural proceeding of analysing the requirements. In this case the requirements are the dimensions of the human body and the spaces required for eating, sleeping and working. They have then to construct a model of the hut, and submit it with the written results of their researches.*

All the Professors complain of a general lack of awareness in their entrants. They generally apply to this problem the policy of encouragement, organizing outings for their students, and bringing to their notice films, exhibitions and other Metropolitan phenomena which they think may wake them up. Sir Hugh Casson even makes his first year students hand in a weekly list of exhibitions, buildings, or sights of London visited, and they may be required to write a report on what they have seen. This lack of awareness was one of the problems with which the Central School was grappling when, with its greater reliance on teaching as a teaching method, it organized its various classes in Basic Art. It is a grave reflection upon our secondary schools and local art schools that such a problem exists at all at this advanced level.

When the time comes for an intensive course in Display—second and third years combine on this—RCA students have the stimulus of designing a number of actual exhibi-

* Acknowledgments for this idea as for so many others in the design field are due to the Architectural Association School of Architecture.

tions. They have in the past undertaken a stand at the British Industries' Fair and in department stores in the West End, and no smaller opportunities are missed. Periodically they set up an exhibition in the domestic entrance hall of their own common room. Some students on an educational trip to Norway were faced with the terrifying opportunity of mounting an exhibition there and then, within a fortnight, without exhibits, preparations or command of the language. They rose splendidly to the occasion, put furniture into instantaneous production, and carried out carpentry and other contractors' work with their own hands. Another member of the party from Kingston Art School printed the wall-paper used.

* * * * *

The School of Interior Design and Furniture at the Central School has been newly constituted under the direction of Mr. Frank Austin. All the students work together for a year, at the end of which they decide which course they will take. As the first year is not yet up, it is impossible to make an over-all assessment. Individual designs will appear with the other illustrations to this article next month. Clearly this arrangement will act as a useful screen against the superficial type of Interior Designer. It could be objected that it is, for Interior Design students, a waste of time to make furniture to full scale; and that it is no more important for them to understand woodworking than the electrician's trade, or screen-printing. The point is of course that once you have experienced the discipline of a craft or trade, you design in quite a different way, as well as meeting tradesmen's problems on jobs with more intelligence and sympathy.

Furniture and Engineering Design are at the RCA two departments under the supervision of Professor R. D. Russell. The latter at the Central School is called Industrial Design. The fact that this label is used for one small branch of what is usually called Industrial Design indicates not a time-lag in outlook, but a conscious educational tenet. It is here felt that the relationship between Industries and the crafts that preceded them is an organic not merely an historical one, that machine-made furniture has evolved from rather than replaced cabinet work. If this is so it is desirable for the designer to go through an embryonic craft stage before he is fitted for the Industrial scene. Only in the department designing mainly for the light metal industries, where there cannot properly be said to be a pre-industrial tradition, has this stand been abandoned.

engineering design

This is by no means the only departure from Central School tradition in the Industrial Design department. Quite as revolutionary is the omission of Life Drawing from the curriculum. Belief in the value of Life Drawing seems to be the most universal canon of Art teaching, and I had begun to think that this was the one common factor running through all departments of both Schools. However, in Mr. Halliwell's Industrial Design department it has been replaced by still life drawing of an extremely topical kind. Mr. Halliwell has the idea, seldom held by artists though often by laymen, that there is no essential difference between the activity of drawing the human figure and that of drawing a

typewriter. His students usually draw scissors, compasses, drills or other tools of their calling. They draw freehand the kind of objects they will later be called upon to draw with instruments. It seems perhaps inconsequential to abandon the human figure in favour of greater universality, and then proceed to draw the most specialized objects the students can find. Nevertheless the net result is that these students can depict three-dimensional form with great accomplishment. The presentation of their designs will have no terrors for them.

Having taken this bold step away from tradition, Mr. Halliwell does not sit back. Theory of Design is a flourishing subject in his department, which is the only one for which the candidate need not have been to an Art School. There is no idea of eschewing the Fine Arts but it is the Sculpture rather than the Life Room that these students tend to frequent. They are encouraged to try their hand at carving and modelling. After this they are introduced to a subject that is a further creative innovation, Machine Sculpture. The lathe replaces the chisel, but the student is still creating form to please himself and not for any useful purpose. He is able to pause and use the techniques of Industry, his future tools, for his own amusement.

The climax of this Course is the Design of some object carried through from preliminary research to final detailing. Last year a group of students collaborated with a hospital to produce a design for a mass-produced hospital lamp. The final presentation comprised 100 drawings.

Teaching of Engineering Design is in an early stage. A tradition has not yet evolved. At the Central School we see Mr. Halliwell trying out a method that he has carefully designed for the job. The Engineering Department at the RCA is quite newly constituted and cannot therefore be observed so easily. Its tutor, Mr. Slutsky, has, however, a clear idea of what he means to do. He has no patience with Theory of Design, but takes the view that the only way to learn to design for Industry is to start trying to design for Industry. The very mention of the phrase 'Machine Sculpture' makes him vibrate with disapproval. His view is that the time for the study of abstract form by designers was in the early days of the Bauhaus—not, mark you, the Bauhaus at Weimar but the Bauhaus at Dessau. Admittedly that was where Mr. Slutsky studied it. But is this any reason why students in London in the 'fifties should be barred from the subject? However, it is true that many years have passed, and Design for Industry, although not a very mature subject, is that much older. The question is whether any research into design can be said to have been done for all time, or whether every designer must go through embryonic stages and feel out for himself what has already been experienced by his predecessors. Mr. Halliwell takes this latter line, Mr. Slutsky the former. He also has views on the training in presentation. His students are encouraged to use the Plant rather than the Life Room. Like their colleagues the Furniture Designers they are trained to make efficient models. But model-making for a man who may be asked to design anything from a lamp-shade to a lavatory basin is more taxing than for one who will be mainly concerned with chairs and tables. To meet the full impact of this demand Mr. Slutsky gets his students to make exact copies of any objects, even

continued from page 210]

living ones. His collection includes a plaster tree branch, and a cactus that has almost to be broken to be believed. Presentation can be learned by experiment and observation, designing, he claims, only by applying the mind.

Though the department has been reorganized this year both Mr. Slutzky and the senior students were already there, and it can be seen that minds have been applied to good purpose. One interesting research undertaken last year was into metal jointing for wooden furniture. Another into an ingenious method for constructing exhibition stands from dismountable units.

One of Professor Russell's most felicitous ideas is the presence of two such personalities as N. J. Slutzky and David Pye both teaching in the same studio. The Furniture and Engineering students are thus exposed while they draw to contrasting stimuli, the fiery intellectual spilling controversy and ideas, and the acid test of that silent appraising scrutiny. This strikes me as an arrangement of tremendous educational value.

furniture

The RCA furniture students do not make full-scale furniture themselves unless they are exceptionally quick at this work. They make models of every design, and those thought to be interesting are made full size by the department's cabinet makers. The designer thus starts straight away in his future relationship to the craftsmen who will carry out his designs. The making of perfect models is considered essential, as drawings are an imperfect means of describing subtle three-dimensional forms. A further result of the model-making is to equip the student for the stage in his career when he will be a designer's assistant.

It is put to the Furniture and Engineering students that if a really good job comes their way the ability to write a good letter may be a deciding factor. They are therefore urged to make use of the English classes available. In such ways the students are lured into a wider education.

jewellery and silversmithing

The enormous Jewellery and Silversmithing Department at the Central School is in marked contrast to the minute establishment at South Kensington. At the Central the full-time students work among an enormous number of part-time apprentices who come for day and evening classes. The semi-precious and diamond-mounting shops hum with activity. Specialists give demonstrations of the possible treatments of different metals, and a large rota of visiting artists and technicians visit with the regularity enjoined by LCC methods. The students attend in the Life Room and do plant drawing. Mr. Emerson indeed asserts that 'if you can't draw you can't know a good line.' Basic design raises its head again in the curriculum, although none was brought to my notice. The 'Shop' atmosphere noticeably predominated in this department. Nevertheless great importance is attached to drawing. Every design must be drawn before it is made, and no sketchiness is tolerated in presentation. A clear three-dimensional description is required, fully rendered. No drawings are hanging on the walls, but with 400 students on the books one can see the difficulties.

At the RCA the 15 students carry out the whole process of designing

and making their designs in one admirably appointed shop. This arrangement seems to create an atmosphere very stimulating to creative work. The contiguity of varied activities, designing, enamelling, casting, and polishing has obvious advantages for the Industrial design student.

The jewellery designed at the College is entirely costume jewellery, and there are no craftsman-apprentices. The students are urged to draw in the Fine Art Department and to study natural forms, and evidence of this is clearly to be seen in their work. I found the statement 'It is always emphasised that design is an intentional product of hard mental exercise rather than a by-product of the proper use of tools and materials' in the outline of this department's aims, though it is the view of the RCA as a whole. Nevertheless, where a craft is being practised its influence will out. Last year some very inventive work was done using a spring as the basic design form.

Little effort is made to enforce drawing as a preliminary to making a prototype. In fact though Professor Robert Goodden denies any principles of teaching, it would seem to be his principle that the student starts designing the minute he enters the school, and goes right on designing at his own speed and in his own way until the three years are up. Only the barest sketch is insisted upon before the jewellery student starts on the metal, though the silversmiths have to consider their formwork more carefully. Nevertheless, by the end of the course, presentation drawings have appeared and are handed in with the solid work.

textiles

The departments of Textile Design are the ones in the two Schools that compare most nearly. On the weave side this could be due to the fact that all the processes that are performed by power-driven looms can be performed more slowly by hand-loom. So no alternative suggests itself to a straightforward craft training. There is a further reason. It is noticeable that those Industries which have the easiest relationship with their designers are those for which the teaching methods vary least. In Textiles no war is being waged. Perhaps because the turnover of designs is so quick, and things move faster in this Industry, most of the manufacturers are nowadays in the habit of going to art-school trained designers for their designs. The technical processes that the designer has to understand can perfectly well be learnt in three years, so that at the end of this time many students are competent designers, and recognised as such.

The first difference in training is that at the Central School weave and print students work together four days a week for the first year. The RCA does, however, intend to follow this practice. This should tend to correct the inevitable tendency of weave designers to take too close a view of their work. The hours spent at the loom are bound to develop a too great preoccupation with textures to the exclusion of broad effects. I cannot see any evidence that the Central School method has had the desired effect.

The weave student's first year at the RCA is designed in a very stimulating way. She works her way past a series of four looms. At the first she experiments with arrangements of threads simply in black and white; at the second with solids and spaces; at the third with a contrast of yarns; and at the

fourth with two colours both on warp and woof. At the end of these experiments she has four sample lengths which are literally the basis of her career as a designer. The excitement of this department comes from the creative use of orderliness. Once the students have mastered the technique of card-cutting they are fortunate enough to have professional help in this work, but they are simply saved repetition, not spoon-fed. Miss Leischner orders very few coloured yarns so that the students shall not work to a preconceived colour range. They have to dye their own yarns when they have decided on their colour-scheme. Periodically they work to the requirements of the Fashion School or the Interior Designers, and so are kept in touch with 'consumers' of their own age.

The second great difference between the two Textile Schools is the far greater space available at the RCA. In the print School there is a large studio, as well as good space for screen printing, laboratories for dyeing and photographic processes.

That the aesthetic outlook is also very spacious must not be taken as the natural consequence of this set-up. Credit should be given to Professor Wyndham Goodden and his staff for the range of idiom and of types of design explored by the students. This is so wide as to defy description, and I shall leave the photographs to speak for themselves next month.

At the Central School mind has so far triumphed over matter that to the casual visitor the lack of space seems a positive advantage. There is no conservatory to provide plants, and only a tiresomely small room for screen-printing, but in the Design Room was the same atmosphere I noticed in a department at the RCA. One can only describe it as a creative atmosphere, busy yet peaceful. One would have liked to stay there and get down to work. The walls are hung with textiles that the students have printed. On one wall weekly sketches, lino-cuts or some first year subject, are hung up, so that the students are always conscious of what is being produced and of the variations within their group. Here as in Miss Leischner's department, order is a creative force. Miss Batty maintains that to create an exciting atmosphere you must insist that the students clock in on time. Indisputably there is an exciting atmosphere.

Nevertheless, the creative spirits in this department do feel the lack of space, and one cannot help wondering how much better they would do in less cramped surroundings and with less time taken up with such chores as card-cutting.

pottery

The Pottery Department at the Central School and the School of Ceramics at the RCA differ quite violently. This is only natural if, as we have hazarded, uniformity of teaching methods is the outcome of a good relationship between Art and Industry. The connection between the Potteries and all that is best in contemporary art is of the most tenuous. It is in fact the situation that existed between Art and Industry as a whole a generation ago. War is being waged. Would-be designers of our dinner services have to make a choice between being swallowed whole by the Industry or staying right outside it. Of the two possible courses open to a school for such designers the Central has chosen the pacifist position, the College the combatant. The Central School abides by its craftsmanlike

attitude, in the belief that form is all important in the design of ceramics. In the pottery industry new forms are appallingly expensive, so that irresistible pressure is brought to bear on designers to rely upon painted decoration for their effects. The RCA has courageously taken up the struggle, but it is on the Industry's ground. The RCA Calendar states that 'in serving the industry the School of Ceramics will be governed more by present day conditions than by opinions of what those conditions ought to be.' Professor Baker has equipped a commodious department for the students to learn the most modern techniques and all the ways of the Industry. Regular visits to the Potteries, and courses with firms there, are an integral part of the course. Unfortunately this is a back-breaking course to fit into three years, so that the student who takes his training as a wage-earner seriously will be precluded simply by shortage of hours from taking full advantage of all the College has to offer him as an artist. The designer in Staffordshire must be highly specialized in techniques of painting and photolithography, pigments and glazes. And he must have a degree of representational skill quite amazingly high. In short the same pitfall lies in wait for him as for the weaver whose eyes are focused for long periods upon the nearness of the loom. He tends to lose touch with breadth and scale. The potter tends to see a vignette rather than a plate or a coffee-pot. One emerges from this department with one's shoulders bowed with the weighty responsibilities of modern Industry, uncomfortably conscious of the capital involved in producing coffee-cups by the 100,000. In trench warfare the front line always becomes more at home with the enemy than with their own side.

The course at the Central School is in the evolutionary craft tradition. The student starts by making simple vertical shapes at the wheel. The RCA student starts as the Professor graphically describes it, 'with a blow on the side of the head.' He goes into the Museum and selects a piece of china to copy. He then proceeds to struggle through all the processes of throwing, decorating and glazing that went to the making of this work of art. After this revealing experience he is apprenticed to a second or third year student, learns from him, and helps him to produce a greater number of pieces to decorate than the senior could do unaided. In this way the students are continuously educated in the art of working with other people, which will stand them in good stead in their industrial life. Classes are held in technical subjects, but the teaching is mainly tutorial. Any individual interest a student develops is encouraged. One student was experimenting with the design of tiles for architectural use. Another had withdrawn into a little room and become entirely preoccupied with an enormous sculptural figure, rather regretably it was felt.

The requisite qualities for a designer of ceramics are not easily found in a single individual. A high degree of organizing ability is rarely found in combination with powerful creativeness. An exceptional person is required to do full justice to this department. In fact the entrants tend not to be above the average. Children who are unsuited to intellectual training and who are clearly not artists are often, and with the best intentions, directed towards pottery. Another factor which deprives the College of talented entrants is that these students are

aware of the conditions awaiting designers in the Potteries, and if they have the means to set up as studio potters the Central is becoming the traditional school for them. This is a particularly unfortunate development as far as the industry is concerned. These two schools do stand on opposite sides of a chasm. Their diametrical approaches have the unfortunate result of splitting the student entry into two groups. The more ambitious, talented, less biddable, go to the Central School, and never come in contact with the industry—though their influence can be seen quietly seeping through in gift shops and country stationers. The more practical and cautious, who are ready to do what they are told in order to earn their livings, go to the RCA. Professor Baker is perfectly aware of the limitations inherent in setting up a school that is to be governed by present-day conditions. When asked what course he would follow if a designer of real stature turned up in the School of Ceramics he replied that he should

send him for part of his course to another department. And he is very much alive to individual differences of talent and stature. His answer to the theory that a good student might miss a good job by insufficient command of English is that a good artist would not write a bad letter.

Meanwhile, the gap between the studio potters and what Professor Baker so depressingly calls 'top level artist-craftsmen' is widening. As they are in different institutions these students, with different aims and outlooks, have no opportunity to meet and influence each other. Clearly the public would be better served by a school which could contrive to combine the functions of these two.

* * * *

In both Schools the final subject for all departments is a Thesis. At the Central School it is always a research into some aspect of the student's subject, presented in written form with illustrations or drawings. An example from the

Engineering Design School is 'Time Measuring Instruments' and from the Textiles 'Peacocks in Indian Fabrics.' The RCA student has to produce a written work of the formidable length of 6,000 words. This is not officially required to be on a subject in the student's own field. In fact almost all students in the Industrial Schools do research into their own subject. Examples of such are those on 'School Furniture' and 'The Interiors of Ships.' Some leave the centre of their subject and research into some detail of historical interest. Textile students traced the history of 'The Rose' and 'The Grapevine' as decorative motifs. These are exact parallels of the Central School Peacock example quoted above.

* * * *

Although, as we have seen, the Central School, being a Regional College has a dual responsibility, it does in the Design field give the College a remarkable run for its money. Industrial Design has everything to gain by this duality.

3 TECHNIQUES

MECHANICAL FIXINGS by Brian Grant

Of recent years the building industry has seen a steady influx of new methods of fixing. Most of these derive from factory practice and are indeed no more than a necessary accompaniment to the increased use of sheet materials. Taken singly there is nothing remarkable about them, but taken together they make an impressive addition to the architect's repertoire. This article is confined to new mechanical fixings and does not include either welding or adhesives.

The many new types of fixing which have come into use in the building industry during the last ten years or so are not so much replacements of traditional fixing methods as new devices called in to fix new materials. For traditional building, traditional fixings still remain the most economical and efficient: it is safe to say, for instance, that the nail is best for fixing floor boards to joists, even though in America the process is carried out not by hand with a hammer but with a spring-loaded gun having a supply of nails in the magazine.

The revolution in timber fixing has, of course, been brought about by the vastly enhanced properties of adhesives, not by any great change in mechanical fixing. Such changes as there have been in this respect have come about mainly as a result of the practice of stress grading. For the chief merit of the various types of timber connector and the practice of *designing* nailed joints is that they give not a stronger fixing but one which can be more accurately calculated.

the adaptation of the screw

The principle of the screw still remains the chief resort of mechanical fixing, the chief developments being the extended use of the ordinary wood screw in traditional building through the use of plugging compounds, and the adaptation of the screw for use in metal either by modifying the screw itself or by providing an improved bearing surface on the far side of the materials to be fixed.

Starting with the ordinary wood screw, it is worth recalling that this is now produced in a variety of

materials as well as steel and brass. Screws in aluminium and plastics material are made, and even stainless steel screws are now obtainable without undue difficulty and are by no means as expensive as one might imagine. Finishes are legion, galvanizing, cadmium and chromium plating or anodizing, while for 'decorative' fixings, where it is thought undesirable for the heads of normal slotted screws to be visible, there are domed button or other shaped caps which can be screwed into a threaded hole in the top of the screw.

It is also worth remembering screw nails, although they do not seem to be very widely used in the building industry. They are square in section and are twisted about two turns in their length to give a coarse screw thread. They have sharp points which will pierce light gauge metal sheeting where a plain nail would buckle, and can be driven rapidly with a hammer like the ordinary nail.

Half-way between screw nails and the self-tapping screws to be mentioned later are drive screws. These are threaded like metal screws, but the thread has a very steep pitch and will cut its way into the appropriate sized hole in metal castings or plastics mouldings when driven with a hammer. A typical application for drive screws is the fixing of such things as name plates to heavy assemblies where the fixing must be permanent.

power-operated fixing methods

Granted that speed of assembly is characteristic of nearly all new fixing methods, it is logical to make special mention of methods where

this is achieved in the application rather than in the fixing itself. Cartridge-operated hammer guns, developed mainly to save time and labour costs, are now very commonly used for fixing battens, brackets or other components to brick, concrete and other solid materials including steel and can be used either on walls or overhead. All these cartridge guns use hardened steel pins of various sizes with plain nail type heads or a threaded end which will take nuts or special brackets or hooks for the suspension of cables, lights or other fittings. The saving in fixing time is considerable, but the hammers cannot be used with materials like asbestos cement, which are liable to shatter. Not long before the introduction of these cartridge guns to the British market, automatic electric stud-welding equipment was produced, but the use of this is limited to the fixing of steel studs to metal, and it is more often used in the shop than on the site.

lightweight partitions

Turning now to the sheet materials used for partitions and wall linings, their fixing, as opposed to the fixing of other items of equipment to them, now follows a fairly well accepted pattern, with wooden battens or metal channels at floor and ceiling. If, however, a high value is set on ready demountability and on the need to inflict the least possible damage to finishes, the partition is secured not by battens or channels but by a spring loaded or screw jack attached to the head of each post, which thrusts against the ceiling and makes as discreet a dent as may be. Vertical joints between sections of partitioning can be made either with

internal tongues, generally of timber, or with H section metal channels, frequently extruded light alloy sections. With these methods the fixing of a partition starts at one end and a special section is used for closing in the last sheet. This method has the minor disadvantage that if a single sheet or panel has to be replaced the dismantling of the partition must begin at the last sheet fixed, working backwards until the appropriate sheet is reached. The difficulty can, however, be overcome by using hollow posts at the vertical joints with a sprung or screwed-in cover strip to hold adjoining sheets.

fixing to hollow partitions

The fixing of other fittings to sheet materials is a more complicated problem, as the materials are not thick enough to hold nails or screws, or too hard or brittle to do so even if the thickness were adequate. Bolts and nuts cannot be used, as the sheets are accessible from one side only. The difficulty can be overcome by using toggle bolts, which may be of two basic types. Spring toggles have a pair of spring-loaded wings which are hinged to the nut, so that when the nut is pushed through the hole on the end of the bolt the wings spring outwards when they reach the cavity behind the sheet and form a crosspiece against which the bolt or screw can be tightened. The other type is the gravity toggle, a single member hinged about the nut, and longer on one side than the other so that it drops down and forms a crosspiece when pushed through the hole. Both these fittings are perfectly satisfactory, but they need a certain amount of space within the cavity for the toggles to open or swing, and if at any time the screw has to be removed the toggle is lost and must be replaced. An alternative is the anchor bolt, in which the nut is held by a pair of metal strips, each having a serrated collar, so that when the bolt is tightened the strips flatten out to form a bridge piece and the serrations grip in all but the hardest of materials, thus forming a permanent nut from which the bolt can be removed as often as required. All three of these fixings need holes bored about 50 per cent larger than the diameter of the bolt, but this is no particular disadvantage as it provides an adjustment for more accurate lining up if the holes should have been slightly misplaced.

Another type of fixing, particularly recommended for plasterboard, but also suitable, in its range of sizes, for materials between $\frac{1}{8}$ and $1\frac{1}{2}$ inch thick, is the Rawnut, in which a brass nut is bonded into the end of a tough rubber sleeve. The action of tightening the screw forms an expanded head of rubber on the inside of the panel, the fixing being both water- and air-tight, and also sufficiently vibration proof to be approved for aircraft work. Satisfactory fixes can also be made in hollow tiles whether the hole comes in a cavity or a web, or even partly in both.

metal to metal jointing

For the joining of thin sheets in some types of metal furniture, and for other purposes, 'blind' rivets are widely used. They were evolved originally for the fixing of aircraft wing skins to the spars and formers, and in other places where access is possible only from one side. Two types are in general use, Pop and Chobert. Both are hollow, and are set by a hand-operated machine

(continued on page 213)

continued from page 212]

which expands the head with a mandrel. Rivets of this kind can be placed at the rate of 1,000 an hour or more, and the hand guns used are made with angled extensions for riveting in awkward corners.

From the point of view of large-scale production of sheet metal components, the greatest design change has been brought about by the Parker-Kalon or self-tapping screw. In appearance these screws have a thread somewhat reminiscent of a wood screw, but the threads of the screw are hardened and they will tap a thread for themselves as they are screwed into the holes drilled to

receive them. Modified types of the standard self-tapping screw are used with the many types of spring tension fastening which have been designed not only for use with threaded screws but to retain round or square pins. Many different types of fix are used, and several different versions of them can be seen on lifting the bonnet of almost any post-war car. The most interesting of them are shown in sketches here. In some materials the plain self-tapping screw may tend to jam as it cuts its thread, and some types are made with a relieving groove to hold the clips produced by the

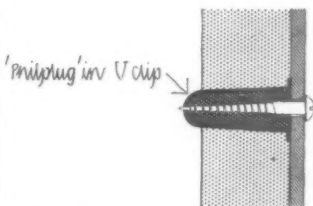
cutting of the thread.

It will be noticed that many of the screws used with the fixing have the star-shaped Phillips recessed head. This type was originally produced for increased speed of installation, as the screw can be placed one handed. With the recessed head, moreover, there is very little danger of the screwdriver slipping and scratching adjacent wood or paintwork: it is also possible to apply a greater turning force to the screw, particularly in the round and raised head versions, where the usual straight slot is particularly ineffective.

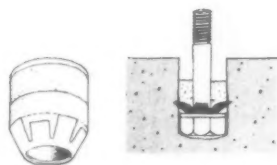
Suppliers

Suppliers of the fixings illustrated below and over are: 1, Philplug Products Ltd., Wembley. 2, 3, 4, 10, 11, 13, The Rawlplug Co. Ltd., Cromwell Road, S.W.7. 5, Dunlop Special Products Ltd., Fort Dunlop, Birmingham (above); A.V.A. Ltd., 45-7, York Street, Twickenham (below). 6, 7, 14, Guest, Keen and Nettlefold, Heath Street, Birmingham. 8, British Plumber Ltd., 19, Albert Embankment, S.E.11. 9, Aircraft Materials Ltd., Midland Road, N.W.1 (above); Aviation Development Ltd., 2, Woodfield Road, Welwyn Garden City (below). 15, 16, 17, 18, 19, Simmonds Aeroaccessories Ltd., Treforest, Glam.

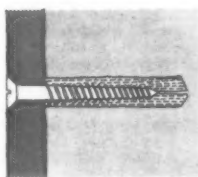
On this and the succeeding page is a selection of the types of mechanical fixing described in the article.



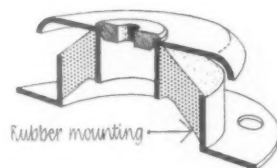
1, a U-shaped clip for use with plastic compound when a fixing hole breaks into a hollow block or lath and plaster cavity. The clip prevents the fixing compound from being pushed into the cavity.



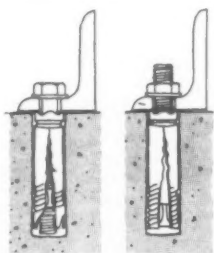
4, caulking bolt anchor for under-water fixings or for use where there is excessive 'rebound', as with power hammers, or vibration.



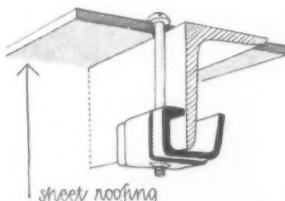
2, three fixings for use with wood screws. Top, the fibre Rawlplug. Centre, a lead screw anchor for use where acids or other corrosive chemicals may be met—preferably used with a stainless steel screw. Bottom, white bronze plugs for use in high temperatures or under water: should be used with cadmium-plated screws.



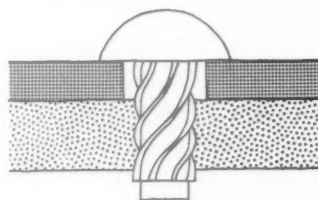
5, two types of anti-vibration machine mounting with rubber as the absorbent material. The version at the top has a shield to prevent contamination of the rubber by oil, and the lower does not depend on bonding for security. Different rubber compositions are produced according to the frequency to be absorbed.



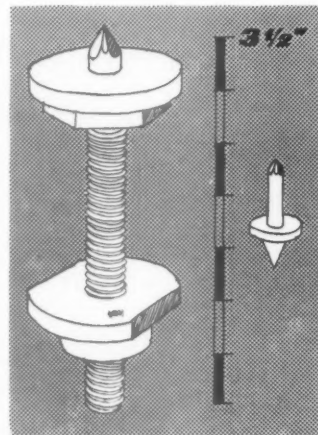
3, Rawlbolts can be made either with a loose bolt, left, or with the bolt projecting, right. With both types the tightening of the bolt expands the two segmental sleeves which thus grip the concrete.



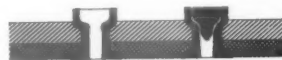
6, the Oakley roofing clip is a neat alternative to the hook bolt for fixing roofing and siding. Only the heads of the screws show outside and the threads (where any galvanizing will be thinnest) are protected from the weather.



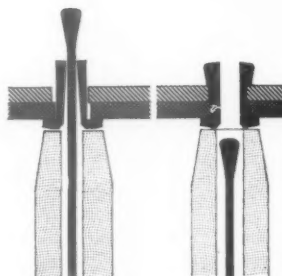
7, drive screw for fastening to sheet metal or for joining two thicknesses of sheet metal. A hole corresponding to the shank is pre-bored and the hardened spiral thread cuts its own way when the screw is hammered.



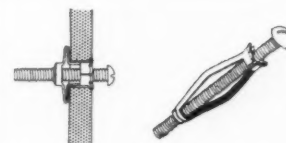
8, a 'Rebond' ceiling jack and pin for attaching to the head and foot respectively of a partition upright.



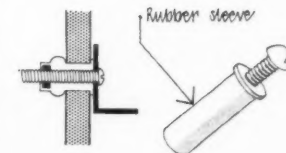
12, Rawlnuts used for fixing in a confined space.



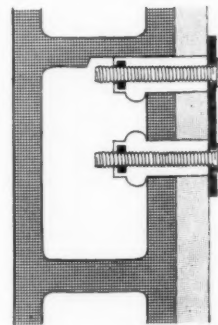
9, two types of 'blind rivet' developed originally for fixing the skin to aircraft wings and fuselages. The rivets may be fixed from one side only, and are headed by pulling through a tapered mandrel which either breaks as in the 'Pop' rivet (above) leaving the head to close the hole, or the mandrel may form part of the fixing device as with the Chobert rivet gun (below). Both these rivets are fixed very quickly, at rates up to 1,200 an hour.



10, anchor bolts make a permanent threaded fixing to thin and hollow materials such as Plasterboard. The anchor strips bend and form a crosspiece as the screw is tightened.

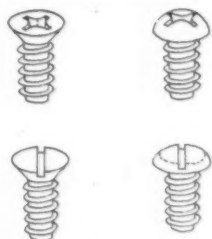


11, the Rawlnut consists of a rubber sleeve into which is bonded a nut. When the screw is tightened a rivet-like button is formed in the rubber. This fitting is particularly useful with hollow blocks or partitions as the presence or absence of internal webs makes no difference to the fixing: see diagram 12 below.

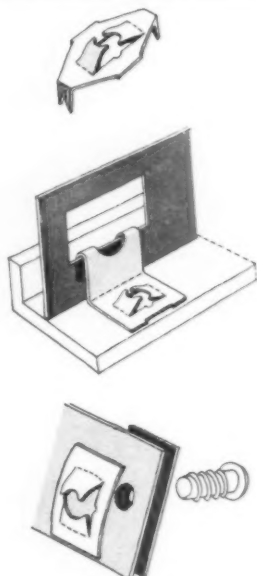


13, two types of toggle bolt. Above, the out of balance 'gravity' toggle swings down as soon as it is clear of the hole, while the spring type, below, opens automatically and can be used overhead as well as in partitions.

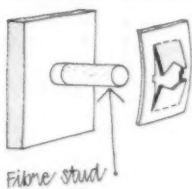
mechanical fixings [cont.]



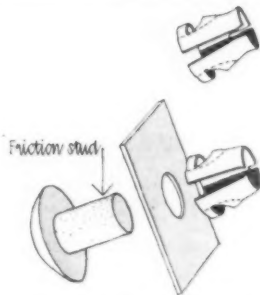
14, recessed head and slotted head self-tapping screws. These will cut their own thread in most materials, including metals, and are widely used for many types of sheet fixing.



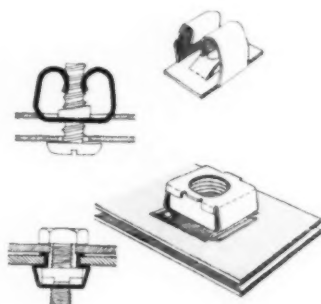
15, 'speed nuts,' which can be used with various types of screw. Below, the plain fitting (flat nut), which replaces the ordinary nut; top, a similar fitting with pointed anchors for use in plywood or hardboard; centre, an angled version much used in the radio industry. (See also Fig. 19.)



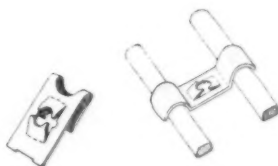
16, friction only grip for use with plain un-threaded stud.



17, removable (above) and permanent (below) clip fittings for holding plain fixing studs, which are held by friction only.



18, two methods of fixing to square punched holes. Top, a spring 'expansion nut.' Below, a square nut held captive in a spring clip. Both these methods allow assembly with access from one side only.



19, speed nut with ears in use as a double cable clip.

working of hasps and bolts and handles as clearly as he could wish. Copies will be supplied to architects and contractors on request.

The Morris Singer Co., Ltd., Ferry Lane Works, Forest Road, Walthamstow, London, E.17.

INTERCHANGEABLE LIGHTING FITTINGS

A useful rule for architects who are about to order lighting fittings is to recall that the idea at the heart of modern lighting is that of economy, using the term in the sense we use it when we speak of the 'economy of nature.' This 'recall to order' is valuable, since the manufacturers of modern lighting equipment



Three lamps in the Forrest Modern range.

are divided between those who derive their lighting forms consistently from this source and those who seek to make their products more popular by vesting them with ornament. The products of the first group are nearly always convincing, those of the second group never so.

The Forrest Modern range of fittings belongs to the first category, the designer (John Reid) having sought to marry the kind of economy which comes from the use of aluminium spinings with that which comes from manufacturing a kit of interchangeable parts.

The structural, holding members in the system are of two kinds, rods and tubes, which are fastened together by means of

[continued on page 216]

4 THE INDUSTRY

METAL WINDOWS

Morris Singer's new book *The Design and Treatment of Metal Windows and Doors* has a value over and above that of the ordinary run of trade literature in that it gives working details of a large number of specialized applications which are not to be found published elsewhere. Double glazing for a hosiery factory, rubber and spring devices to prevent rattling in a

railway signal box, aluminium laylights in the British Museum and the National Gallery, these are all specimens of techniques which have received insufficient coverage in the press and which are very clearly set forth here. Apart from this the book is very useful to the architect on the drawing board, as it gives the profiles and dimensions of standard sections and the

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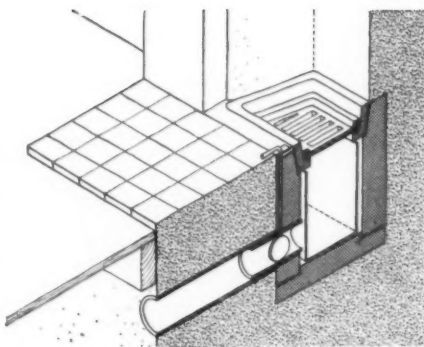
continued from page 214]

adjustable clamps. Lighting systems in which the rods prevail (and which are therefore characterized by loose flexes) bear the makers' trade name of 'Tripoli' while those where the flexes are mostly concealed in tubes are referred to as 'conduit' systems. The two provide a very successful repertoire of display lighting. All that remains now is for the range to become sufficiently popular for the makers to reduce their prices, so that the intrinsic economies of this idea can be more clearly felt.

George Forrest & Son Ltd., 30, Osborne Road, London, W.3.

CONTROLLED DRAUGHT SUNKEN FIRE

We illustrate on this page a version of the sunken fire which combines damper control with draught from the outside air. A movable grate stands over a movable ashpan, which in turn stands in a 'box' constructed of cement fondu. The flow of air enters this box through a piped sleeve (where the damper operates) leading from the underfloor space. By this means two of the chief defects of the open fire are diminished: incomplete combustion due to the haphazard passage of air over the surface of the fuel and draughts caused by the fire taking its air from the room.



For the many who feel that contrivances should be felt but not seen this will be a welcome choice. It is manufactured in two sizes: the 16-inch fire opening selling at £8 5s. 0d., and the 18-inch at £8 17s. 6d. (retail price). It is named the Tiger controlled draught sunken fire and is manufactured by Keightley and Taylor Ltd., Hudson Street, Loughborough.

LATTICE SHELL

The chief limiting factor to the use of orthodox concrete shell roofs has always been the need to provide structural shuttering. 'Lattice shell' (designers: Ove Arup & Partners), which consists of a triangulated steel tubular network, evades this through being structural itself. It

can be used either as a support to some form of sheeting or boarding, or it can serve as the reinforcement to lightweight concrete, when the tubes themselves give support to the shuttering. A further advantage is that daylighting can be incorporated in any position without difficulty.

This type of structure seems likely to prove economic in the field of factory building for uninterrupted spans of over



Lattice shell roof at Mitcham.

30 feet. Granted that in this class of work cost must almost always be critical, it will be a relief to the architect to have an alternative which is at once cheap (so far as building structure can ever be cheap) and convincing in appearance.

Scaffolding (Great Britain) Ltd., Mitcham, Surrey.

[continued on page 218



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Sheen Road, Richmond, Surrey



Faced in Ibstock Golden Brown Multi Hand-made Bricks

Architect: F. G. Broadbent, F.R.I.B.A., Goodhart, Rendel & Partners. Contractors: C. H. Gibson Ltd., Thornton Heath. Bricks supplied through Finnis, Ruault & Nicholls Ltd.

The serenity that cloaks this charming church is a fit counterpart to its dedication. In a well-known residential district, the building stands harmoniously among its surroundings clad in the attractive colouring provided by the Ibstock Golden-Brown multicolour hand-made facing bricks.

Ibstock

Owing to present demand, supplies of facings of most types are booked for a long time ahead, and reservations for 1955-6 are now being made.

FACINGS for Colour

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'Phone: Ibstock 391 (2 lines)

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ELECTRICAL TRUNKING

The problem of what to do with service runs has been attracting a great deal of attention recently. A new system evolved by BTH for electrical conduit and called by them 'Invertrunking' involves the



'Invertrunking' used in the BTH showroom.

use of a section which is strong enough to support the weight not only of the fittings but of a suspended ceiling as well; and which is so designed that all adjustments to the lights can be made from below. This last is an advantage in a suspended ceiling since it means that there is no need to disturb the ceiling panels on account of the lighting; but in a solid ceiling, where the trunking is bedded in plaster or concrete, the advantage is more significant, since it has not hitherto been possible to effect any adjustment to lighting in this situation without damaging the finishes.

'Invertrunking' is formed of a one-piece aluminium extrusion 4 inches wide and $1\frac{1}{8}$ inches deep. Angle, Tee and Cross-over sections are available, while joints are made by means of an internal sleeve held in place by self-tapping screws or pop rivets.

British Thomson-Houston Co. Ltd., Crown House, Aldwych, W.C.2.

EPIKOTE RESINS

Architects have enough difficulty in keeping up with new end products in the building industry to be excused if they are not always well versed in changes in the chemical constituents of which these end products are made. This will certainly have been the architect's reaction to the recent Epikote Exhibition mounted by Shell Chemicals Ltd. 'Epikote' is Shell's trade name for 'Epoxide,' a chemical constituent which can apparently be used for making almost everything but which, for architects' purposes, may be taken as an improvement on Alkyds in paints and varnishes. Epoxide paints are more expensive in first cost than alkyd paints, the difference, grade for grade, being of the order of 8s. per gallon. This difference can be more than offset in certain circumstances, e.g., painting on concrete, where Epoxide resin's resistance

to alkali makes it practicable to omit a sealing coat.

It is, in fact, superior resistance to chemical attack which distinguishes Epoxide paints, whether this attack comes from within or from without, and for this reason the most common circumstance which calls for their use is polluted atmosphere. Epoxide varnishes share this quality (which makes them useful, for instance, on the woodwork on bar counters) and in addition resist wear, which makes them a good surfacing for timber floors.

CONTRACTORS etc

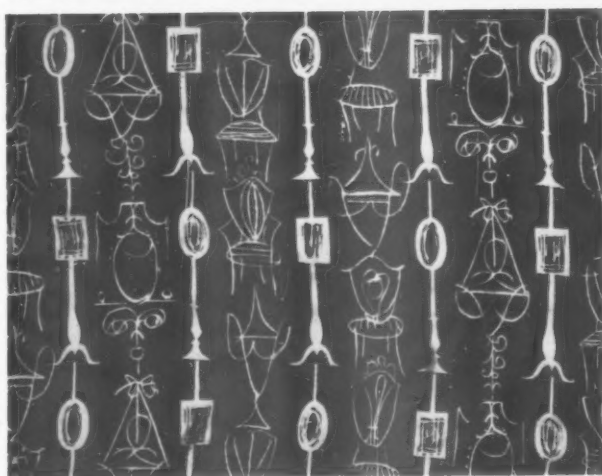
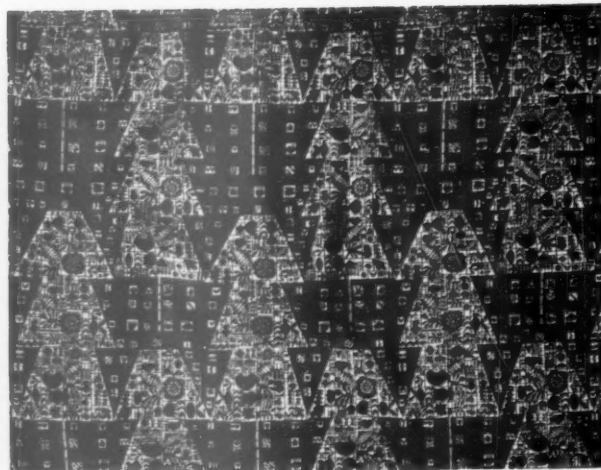
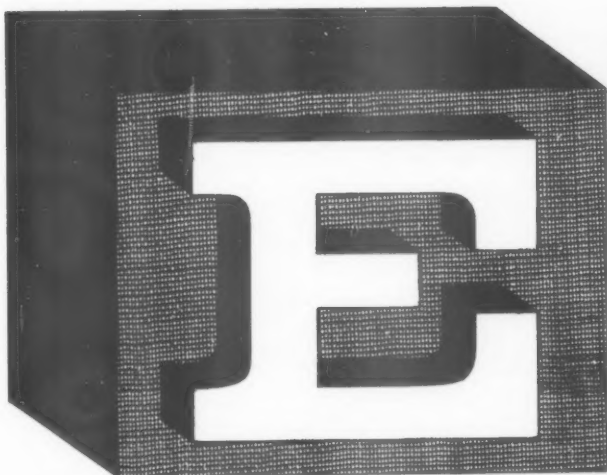
Offices at Poole. Architects: Farmer & Dark. General contractors: Whitelock & Co. Sub-contractors: Altro flooring: The Adamite Co. Venetian blinds: J. Avery & Co. Balustrading: The Birmingham Guild Ltd. Gas connections: Bournemouth Gas Undertaking. Roller shutters: G. Brady & Co. Roof decking (cycle shed): William Briggs & Sons. Planting: J. Cheal & Sons. M.S. staircase balustrade: Clark, Hunt & Co. Heating and hot water services: James Combe & Son. R.C. structure: William Cowlin & Son and Wheatley Bryon & Partners. Canteen equipment: Falkirk Iron Co. Wrought iron wire bins: Farrow & Jackson Ltd. Resinoid flooring: Haskel Robertson & Co. Lightproof blinds: Albert J. Shingleton Ltd. Electrical wiring, installation: Southern Electricity Board. Electric clock system:

[continued on page 220]



'Lotus' basins installed in the new offices for the Loewy Engineering Co at Poole
Architects: Farmer & Dark F/R.I.B.A

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The fabrics (reading from the top) are called 'Xanadu', 'Fisherman's tale' (left), 'Threnody' (right), 'Hepplewhite'.

EDINBURGH WEAVERS

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Synchrone Co. *Hand power lifts*: Waygood Otis Ltd. *Window frames, roof lights, glazing*: Williams & Williams Ltd. *Wood flooring*: Vigers Ltd. *Willon carpet*: Vineys of Abingdon. *Emulsion paints*: Vitrexx (England) Ltd. *Oil paints*: International Paints Ltd. *Sanitary fittings*: Adamsez Ltd. *Louvers*: F. H. Biddle Ltd. *Postal box, baffle plates*: Birmingham Guild Ltd. *Gates*: Boulton & Paul Ltd. *Enquiry desk cill, flower box, slate slabs*: Bow Slate & Enamel Co. *Louvered vents, balustrading and hand rails*: Clark Hunt & Co. *Broadcrete columns*: Concrete Utilities Ltd. *Electrical fittings*: Courtney, Pope (Electrical) Ltd. *Fluorescent fittings, louvered panel*: Ekco-Ensign Electric Ltd. *Marble paving*: Fenning & Co. *Lightning conductor*: W. J. Furse Ltd. *Electrical fittings, fluorescent lanterns*: General Electric Co. *Stainless steel grip handles*: James Gibbons Ltd. *Lightning fittings*: Hartley Electromotives Ltd. *Purbeck stone*: W. J. Haysom. *Roof lights*: Hills (West Bromwich) Ltd. *Electrical fittings*: Hume, Atkins & Co. *Fibre underfloor ducts, telephone pedestals*: Key Engineering Co. *Loft ladder*: Loft Ladders Ltd. *Electrical fittings*: The Merchant Adventurers Ltd. *Ironmongery*: Mountford Bros. Ltd. *Glass domes*: Seddon & Sons (St. Helens) Ltd. *Coat hangers and framework*: James Sieber Equipment Co. *Electric toilet incinerators*: Stitsons Sanitary Fittings Ltd. *Special chimney bricks*: Swanage Brick & Tile Co. *Electrical fittings*: Troughton & Young (Lighting) Ltd. *Mats*: Tyre Products Ltd. *Extract units weather cowls*: Vent-Axia Ltd. *Soap dispensers*: Waddington & Duval Ltd. *Partition units*: Yelverton Dawbarn Bros. Ltd. *Vitrolab*: Plyglass Ltd. *Acoustic ceiling panels*: Celotex Ltd.

Research Laboratories and Workshops at Wythenshawe, Manchester. *Architects*: Cruickshank & Seward. *General contractors*: R. Costain & Sons (Liverpool). *Sub-contractors: structural steelwork*:

Henry Smith (Constructional Eng.) Ltd. *Reinforced concrete floors, flat roofs, staircases, etc.*: Matthews & Mumby Ltd. *Metal windows*: Doodson & Bain Ltd. *Rood glazing*: Mellows Ltd. *Heating and ventilation*: Brightside Foundry & Engineering Co. *Electrical installation*: T. Clarke & Co. *Wood block floors*: Hollis Bros. Ltd. *Granolithic floors*: The Johnson Flooring Co. *Terrazzo paving*: Conways Ltd. *Wall and floor tiling*: Beaumonts (Manchester) Ltd. *Internal partitions*: R. Costain & Sons. *Metal partitions*: Roneo Ltd. *Rolling shutters*: Mather & Platt Ltd. *Goods lift*: Etchells, Congdon & Muir Ltd. *Asphalt roof covering*: The Limmer & Trinidad Lake Asphalt Co. *Balustrades and handrails*: Brookes & Co. (1925) Ltd. *Reconstructed stone*: Girdings Ferro-concrete Co. *Kitchen equipment*: General Electric Co. *Fire equipment*: Charles Winn & Co. and John Morris Ltd. *Facing bricks*: Blockleys Ltd. *Paint*: Donald MacPherson & Co. *Sanitary fittings*: Shanks & Co. *Metal roof decking*: The Ruberoid Co. *Lightning conductors*: John Faulkner & Sons. *Ironmongery*: James Gibbons Ltd.

Primary School at Enfield, County architect: C. G. Stillman. *Assistant architect*: J. P. Kenna. *General contractors*: Townsend & Collins. *Sub-contractors: heating and hot water installations*: William Freer, Ltd. *Electrical installation*: Grierson, Ltd. *Sanitary fittings*: Stitsons Sanitary Fittings Ltd. *Facing bricks*: Henry J. Greenham (1929) Ltd. *Paint*: Hadfields (Merton) Ltd. *Structural steelwork*: Smith Walker, Ltd. *Glass domes*: R. Seddon & Sons (St. Helens). *Wood block flooring*: Vigers Bros. *Felt roofing*: The Ruberoid Co. *Ironmongery*: Nettlefold & Moser, Ltd. *W.C. partitions*: Mosaic & Terrazzo Precast Co. (Staines). *Reinforced concrete work*: Indented Bar & Concrete Engineering Co. *Metal windows*: Crittall Manufacturing Co. *Ventilators*: Colt Ventilation Ltd.

Playgrounds: G. Skinner & Sons. *Cloakroom fittings*: Walter Lawrence & Son. *Entrance gates and metal balustrade to staircases*: Clark Hunt & Co. *Suspended ceilings*: Tentest Fibre Board Co. *Sliding doors and timber balustrade to Infants' assembly hall stage*: A. E. Lindsey & Son. *Accotile flooring*: Rowan & Boden Ltd. *Asphalte tanking*: Permanite Ltd. *Joinery*: R. Cattle Ltd.

Police Station at Oxhey, County architect: C. H. Aslin. *Architect in charge*: J. M. Pyper. *General contractors*: Harry Neal Ltd. *Sub-contractors: asphalt*: Asphaltic (London) Ltd. *Reinforced concrete*: Siegwart Floor Co. *Bricks*: Eastwoods Sales Ltd.; Uxbridge Flint Brick Co. *Artificial stone*: Girdings Ferro-Concrete Co. *Roofing felt*: D. Anderson & Son. *Patent tile*: Camden Tile & Mosaic Co. and Hollis Bros. Ltd. *Central heating*: H. G. Gibbons & Sons. *Gasfitting*: Eastern Gas Board. *Electric wiring*: George R. Clay Ltd. *Sanitary fittings*: B. Finch & Co. *Door and window furniture*: Nettlefold & Moser Ltd. *Rolling shutters*: Thornborough & Son (Manchester). *Sunblinds*: Waller Palladium Co. *Metawork*: Clark, Hunt & Co. *Windows*: Henry Norris & Son. *Cranes*: R. C. Gibbons & Co. *Water supply*: Colne Valley Water Co. *Signs*: Falcon Signs Ltd.

Corrections

Secondary School at Lewisham: *Architects*, Clayton & Black & Daviel, January issue. The sub-contractor for Wood block floors should read Messrs. Hollis Bros., not the Granwood Flooring Co.

Flats in Holford Square, Finsbury: *Architects*, Skinner, Bailey and Lubetkin, February issue. The following should be added to the list of sub-contractors, *Paints*: Duresco.



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